The Journal of the American Medical Association

VOL. XXIX. CHICAGO, ILL., NOVEMBER 27, 1897. No. 22.

ORIGINAL ARTICLES.

REMARKS ON THE TREATMENT OF INEVITABLE ABORTION.

Presented in the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY HENRY P. NEWMAN, A.M., M.D.

CHICAGO, ILL.

I had intended presenting a selection of cases illustrating one or more interesting phases of gynecologic practice, but the trend of a recent discussion in our Chicago Gynecological Society decided me that a brief paper upon the treatment of actual or inevitable abortion would be most timely.

On the occasion in question, I found myself practically alone, among those present, as the advocate of principles which have seemed to me logical and in accordance with modern therapeutics, and which I have practiced for some years with the most satisfactory results.

The comparative merits of the so-called conservative or expectant plan, and the immediate or radical method of handling cases of unpreventable abortion, have been so much discussed, and there is still so great a diversity of opinion, that I am impelled to give testimony to the advantages of the latter procedure. In evidence I offer its success in my own experience and the growing favor with which it is treated in our text-books and current literature.

It is variously estimated that the proportion of pregnancies ending in abortion is from 1 in 12 to 1 in 4, and that from 85 to 90 per cent. of married women abort one or more times during their child-bearing life.

Now the immediate dangers of abortion are two, hemorrhage and septicemia. To these may be added those other, more remote, but no less real and disastrous probabilities, subinvolution, chronic metritis, increased size and weight of the organ, uterine displacements consequent upon these conditions, salpingitis, oophoritis, etc.

Says Dr. Taber Johnson:[1] "Our free dispensaries and charity hospitals afford innumerable examples of broken constitutions and ruined lives which have had their sad beginnings in an improperly treated abortion. Frequenters of our gynecologic clinics often state that the displacements or inflammations from which they suffer date back to abortions occurring three, five or ten years previously."

This being the case, and the welfare of women so greatly involved in the issue, it is surprising that there should exist among authorities the wide divergence of opinion, in fact the absolute antithesis of which I have spoken, in regard to the proper treatment of inevitable abortion.

As to the indications to be met, all are agreed, and the conventional advice of all text-books is: Empty the uterus and get rid of the ovum as soon as possible, when the hemorrhage is alarming or the symptoms indicate the approach of sepsis. In other cases do not interfere. Watch your patient carefully for the symptoms of danger; be in a condition, as it were, of armed expectancy, and at the first signs of septic import, empty the uterus.

But why this unsurgical method? Why wait until that which is feared, if not certainly expected, has occurred?

The sort of sanctity which surrounds the gravid state, and the strong sentiment against the use of instruments in the puerperal uterus, should not blind us to the fact that we have here not an obstetric, but a gynecologic condition, exhibiting the pathology of trauma, and calling for the same rational surgical treatment that we should use in any other case where uterine hemorrhage and expulsive pain are the prominent symptoms.

I refer, in my entire remarks, only to abortion in its strict sense of expulsion of the uterine contents before the third month of gestation.

The proposition that nature will best take care of these conditions is not rational, because the very fact of abortion is a confession on the part of nature of her inability to do her work properly, and whether in criminal abortion with mechanical injury, or in abortion from pathology of the fetal or maternal tissues, nature is taken at a disadvantage, and with none of her uterine forces in proper shape. It is the exception, and not the rule, that she conducts the case as well as the intelligent physician can do.

At a meeting of the New York Obstetrical Society, Nov. 19, 1895,[2] A. M. Jacobus, M.D., reported a case of early abortion which he had recently attended, and which I introduce here for the sake of the discussion elicited. The patient was suffering from severe hemorrhage when he saw her, and being sure of his diagnosis, and not believing in tampon, he made a thorough curettage, and hemorrhage and pain ceased at once. The Doctor exhibited the specimen, which showed ovum and membranes intact, and proved that the use of the sharp curette, with flexible handle, was, in careful hands, attended with no such danger, as generally feared, of perforation of the uterine wall.

The immediate success and subsequent good history of the case illustrated beautifully, says the report, that the proper treatment of abortion, whether early or late, is immediate curettage and a thorough emptying of the uterus, using care and perfect cleanliness.

In the discussion which followed, various opinions were put forward, those directly favorable being here given, as well as those which we may consider favorable by inference.

Dr. Brooks H. Wells thought that as long as there was any decidua in the uterus the patient was liable

[1] American Journal Ostetrics, Vol. xxxiii, No. 217.

[2] The Am. Gyn. and Obst. Jour., Vol. viii, No. 1.

to develop sepsis at any time. If the abortion came on from purely natural causes, the ovum, in a large proportion of cases, would pass entire. But the average abortion was not from natural causes, it was the result of some interference, usually mechanical. The ovum might come away while the membranes remained, the patients go on to bleed, and get up the very condition which had been mentioned as occurring after curettage; namely, a hyperplastic endometritis. He had seen that occur in a number of cases where nothing had been done but follow the expectant plan. In fact, a large proportion of the women suffered afterward from some trouble directly traceable to the abortion. But where curettage had been done carefully, skilfully, aseptically, with the sharp curette, he had never seen any harm come from it.

Dr. A. M. Thomas said that when there was no doubt about the impending abortion and the miscarriage lingered, as often happened, nature doing her work very poorly in these cases, he thought it was good practice, and his own experience had confirmed him in this view lately, to go ahead and hasten matters, dilate the cervix and remove the ovum, cleaning out the uterus as well as possible by curettment, under the strictest aseptic and antiseptic precautions.

Dr. Florian Krug stated, that a number of years ago he had seen a great many cases of abortion in which he did not feel himself called upon to interfere surgically, and the patients made a perfect recovery, as far as temporary results are concerned. It was true, however, that some of them had subinvolution and required curettage afterward. But one not in general practice knew, when he was called in consultation, that there must be already some trouble arising from the abortion, and it became necessary to treat the case surgically. In fact, the cases which he had seen for some years past had required surgical interference in the way of dilatation, curettage and thorough cleaning out of the uterus.

Dr. Charles Jewett said his experience had been that cases of abortion which had not been touched at all, provided the decidua alone remained, generally did well without curetting: He did not know, however, how one was to assure himself that the decidua was the only thing left, unless he had an opportunity to examine the entire ovum. Therefore he would prefer to curette and make sure of the condition of the uterus.

In general it may be said, that those who are accustomed to do curettement in a skilful and aseptic manner, are advocates of its use for the indications under discussion, and that its opponents are those who have not cultivated the technique sufficiently to master it. Indeed one man, of good ability, said at the same meeting, that he could never feel sure that he had removed the endometrium by the curette; that he had seen the decidua come away entire some time after he supposed he had curetted the uterus most thoroughly. On the other hand, Mundé says: "I have found the use of the curette in the uterus, the dull curette above the internal os, the sharp curette between the external and the internal os, of incalculable value in my practice." And further, in regard to inevitable or actual abortion he says: "The future safety of the patient demands that the secundines should be at once removed after the expulsion of the fetus, in every case in which such removal can be accomplished without force sufficient to injure the woman."

For a concise statement of the views of the more prominent foreign teachers, I am much indebted to the pages of the "System of Obstetrics by American Authors," edited by Dr. Hirst of Philadelphia. "In France the balance of opinion is for the more conservative course. Tarnier would avoid any interference, even if the whole placenta is known to be in the uterus, employing antiseptic injections systematically while waiting for nature to expell the foreign substance. If, however, alarming hemorrhage appears, or the discharge becomes foul, active measures are instituted. Tarnier points to the statistics of the Charité and the Maternité, in which he saw forty-six cases of retained placenta after abortion, with only one death, and that from pneumonia. But in the statistics of the Obstetrical and Gynecological Institute at Florence, in which also the conservative treatment is used, there is a death rate of 6 per cent. Of the radicals in France, Guéniot leads, and next comes Doléris, who recommends active interference in retention of the placenta, but counsels a conservative course when the membranes are retained.

In Germany the same difference of opinion may be met with, but the majority lean to a more active course. Schroeder counsels waiting until there is some dilatation of the os, and until the ovum is pretty well separated from the uterus, then the uterine contents can often, at least in the early months, be pressed out by Hoening's method, squeezing the uterus between two fingers in the vaginal vault and those of the other hand on the abdomen. But if any portion of the ovum should remain behind, it must, says this author, invariably be removed, even should the cervix have to be split on both sides to reach it. If the retained substance is the hypertrophied decidua of early pregnancy Schroeder advises the use of the sharp curette to remove it. Fehling and Schwartz are also warm advocates of an active treatment. Braun rather deprecates the employment of instruments in these cases, but advises the use of the finger whenever possible, to remove the ovum. Dohrn, on the other hand, carries the expectant plan of treatment to its farthest limits, and Winckel and Schauta attempt no active interference. "Now," continues the author, "is the retention of decidua, fetal membranes or placenta after abortion, fraught with any danger to a woman? And is the immediate removal of the secundines ofter abortion necessarily a violent or dangerous procedure?"

Cases are reported, it is true, in which the retention of the placenta was followed by no immediate symptoms; but will any one say that under such circumstances a woman is healthy and free from danger?

The following case, abstracted from Tarnier and Cazeaux, is instructive in this connection for Tarnier, be it recollected, is one of the foremost advocates of the expectant treatment. (The italics in the quotation are mine.) "During the first five days the patient did very well, but on the *sixth I thought I detected a slight odor in the lochia*, and at 3 o'clock in the afternoon a violent chill came on which lasted an hour. This unfortunate woman died on the tenth day. At the postmortem we found the uterine tissue softened and its cavity filled *by the putrified and still adherent placenta*." Note that on the sixth day, there was a mere suspicion of a putrid odor to the discharge, and yet at that very time this woman's life was probably doomed.

The question as to the danger of active interference after abortion can only be answered by those who

have adopted this plan of treatment in a skilful and judicious manner.

Dührssen has reported 150 cases of abortion treated by a thorough and immediate clearing out of the uterine cavity, with only two deaths, and these in no manner attributable to the treatment adopted. "I have used the curette in many cases *postpartum et abortum*, and have never seen the slightest ill effects from it; on the contrary the treatment proved invariably beneficial."

It is very evident from the tenor of these quotations that Dr. Hirst himself is an advocate of the immediate, as opposed to the expectant treatment of inevitable abortion, and it is probable that his colleagues in this city of advanced medical theory and practice are generally of the same opinion.

My own custom in regard to these cases, is, when satisfied that loss of the ovum is inevitable, or that partial evacuation has already taken place, to proceed at once to empty and cleanse the uterus. In this I depend, for success, upon the same precautionary measures that I use in performing a vaginal section; the same aseptic and antiseptic care, and, when time and the circumstances will permit, the same preparation of patient and surroundings. The emunctories, intestinal tract (with special reference to free catharsis), bath and sterilization of the genitals are attended to. The patient is anesthetized, placed upon a table, with good light, and the necessary instruments, dressings, sponges, etc., at hand.

The uterus is drawn down with vulsellum forceps and the dilatation and curetting done under a constant flow of a bichlorid solution, 1 to 4,000. The dilatation, with a large Goodell's dilator is accomplished with much more facility than in the non-puerperal uterus, owing to the physiologic softening of the gravid state, but every precaution is used to dilate with as little trauma to the parts as possible, at the same time a thorough divulsion of the canal is a prime condition, an inch and a quarter to an inch and a half being the minimum amount.

As I have said, this is a much less difficult thing to do here than in the non-pregnant uterus, owing to the softening of the uterine parenchyma even in the earliest months; but even so, the divulsion or stretching should be done by simply compressing the handles with the grasp of the hands, and not by means of the thumb-screw. In this way the pressure can be accurately gauged in lateral, oblique and anteroposterior directions, a process of kneading, as it were, that will produce a physiologic dilatation not dissimilar to that of nature's accomplishment in normal childbirth. The same care and precaution in the use of the curette is of paramount importance. I select a medium sharp instrument, with flexible shank, bent to correspond with the various angles of the cavity of the uterus. This is readily passed through the fully dilated cervix, and now the various surfaces of the endometrium are carefully but thoroughly curetted, not neglecting the cornua and fundus.

Up to the end of the third month of pregnancy the uterine walls are sufficiently firm in structure to render the occurrence of perforation entirely inexcusable. The well-handled curette will do no more than simply remove the secundines and the endometrium, and undue trauma should never be inflicted.

The uterine cavity is next washed out with bichlorid and sterilized water, and then swabbed with 95 per cent. carbolic acid or iodized phenol, again washed out with the bichlorid sterilized solution and packed with narrow, hemmed, iodoform gauze or wicking.

This should be pressed firmly in each cornu and should fill, compactly, the upper two-thirds of the uterine cavity; but the lower third should be only loosely packed, and only a strand or two of the gauze should protrude through the cervix. I attach this strand to a loose vaginal packing of gauze so arranged that the whole or any portion can be removed at the will of the operator.

The usual antiseptic dressings are applied over the vulva, the patient returned to the bed, the subsequent conduct of the case being such as would follow an ordinary curettement and there need be no greater anxiety as to the outcome. There will be no further symptoms, provided sepsis has not already occurred, in which case we can be satisfied that the treatment has been both timely and appropriate.

Note.—There has appeared in the *West. Med. Review*, April 15, 1897, an article by V. L. Treynor, M.D., briefly calling attention to the advisability of the prompt emptying of the uterus into this class of cases. I am very glad to add the author's testimony in favor of the method and to quote what he says of his own experience: "I have been confirmed in my choice of methods by the uniformly better results I have obtained by its use. In my earlier cases the expectant plan of treatment was uniformly followed, and the results were disappointing. The recovery of my patients was slow, and after subjecting them to the dangers of sepsis and hemorrhage, I was frequently compelled in the end to resort to the use of the curette, and observing how promptly and satisfactorily my patients recovered after thoroughly emptying the uterus, I finally decided that the early removal of the retained mass was attended by better results."

DISCUSSION.

Dr. THEOPHILUS PARVIN of Philadelphia—It is a disputed point as to how inevitable abortion should be treated. There comes first the question: What is inevitable abortion and how do we know abortion is going to be inevitable? We may have the decidua discharged and pregnancy go on to term. Only under two circumstances is abortion inevitable. One is after the ovum, the embryo, or fetus is dead and the other is when the membranes have been ruptured. How do you know these things? Sometimes you know the membranes are ruptured, in many cases you do not know. In many others you do not know that the embryo is dead. Let us admit that the abortion is inevitable. Facilitate it; but to introduce a curette into the uterus of every woman who has an inevitable abortion I think is unnecessary. The majority of those who have been in general practice have seen abortions occur, and they never introduced a curette into the uterine cavity. This may be overdone. Only a month or two since I had under my care a patient suffering with pyemia, brought on doubtless by an overworked doctor who attended her in abortion. He was determined to scrape everything out of the uterus and the consequence was infection. My own belief was that she was three months advanced in pregnancy and I have no doubt she would have gotten along better if the doctor had not used the curette. The ankylosis of one of her limbs has deformed her and maimed her for life. So that while there are a certain class of cases that demand direct interference, I would say in cases of hemorrhage use antisepsic gauze for packing. I would give ergot, and between the gauze pressing against the cervix and the ergot acting upon the muscles, and the gauze preventing the escape of blood, it might flow out between the ovum and walls of the uterus, and in twenty-four hours you will have a complete abortion. When it comes to the retention of the placenta I certainly would not trust to nature. You can by dilatation get rid of the placenta. If you can not you can at least use antiseptic injections. The placenta can be removed after it is detached. If it is not detached you are liable to inflict traumatism in removing it with your instrument or hand and you are likely to leave some fragments behind. If necessary I would resort to tampon and trust to dilatation from pressure

of the tampon against the cervix. The tendency of this tampon is to dilate the os and the action of the ergot to expel the contents. I should be sorry to see the curette adopted in these cases in general practice. There are indications which imperatively require curetting, but in average cases, and I appeal to the practice of the great majority of physicians throughout the country, patients have done fairly well without curetting. It can be proven, too, that these women have not taken proper rest and that it is not the abortion so much which is breaking down their health as it is the want of proper rest after abortion occurs.

While in many points I agree with the essayist, in others I differ widely with him. There are certain indications for active interference. In the earlier months of pregnancy I would not use the curette at all. There is no instrument comparable with the Emmet curette forceps for this purpose and swabbing the uterus out or injecting into it Churchill's tincture of iodin. If the patient takes proper rest she will get on just as well. If a soft uterus I would not care to use a sharp curette. I do not want to use an instrument where my eye can not follow it and where I am not permitted to know whether I am scraping away uterine tissue or mucous membrane. Suppose there is abortion, at the next menstruation the decidua will be cast off and if the patient is properly treated with antiseptic injections she will get on very well and will not have to go into a repair shop for women, usually called a gynecologic hospital.

Dr. C. C. FREDERICK of Buffalo—I speak in favor of the proper use of intrauterine curetting following abortions, and by its proper use I mean precisely that set forth by Dr. Parvin, and if it is necessary to pack the vagina to control the hemorrhage for a few hours and give the uterus an opportunity, by hemorrhage between the mucosa and placenta, to separate the decidua and other tissues by slow measures, separating the placental and decidual tissues with the finger or curette, be it sharp or dull. I have seen many cases of incomplete abortion in which the membranes have ruptured, the cervix has dilated partially and the membranes have been unable to withstand the pressure of the uterus. After rupture the fluid and fetus have escaped, but still there remains in the uterine cavity the decidua and placenta. Perhaps the uterus will expel the contents and perhaps it will not. If it does expel it it will do so in twelve to twenty-four hours. I would not carry into the uterine cavity any source of infection by leaving a foreign substance in it. It has not been my custom in these cases to resort to packing. Where the uterus is clean I do not see the necessity for packing to control hemorrhage. In the main I agree with Dr. Newman and I do not believe he meant that in every case of inevitable abortion, as soon as the fetus came away we should use a curette. We should give nature a chance and then, if necessary, clean out the uterus.

Dr. J. HENRY CARSTENS of Detroit—It seems to me that a good deal depends upon how abortion is produced. In the last stage, when we have cases that occur as the result of accident to the woman, where there is no septic infection, the placenta can be allowed to remain in the uterus for a week, a month or even six months, without any injury and finally be expelled and it is all right. But I think those of us who see a great many cases requiring abdominal surgery and who secure the history of the cases, find that these women have trouble because they have an abortion and not an abortion as a result of accident, but as the result of the direct introduction of something into the uterus either by themselves or by some ignorant quack or abortionist. In other words, they have become infected. When we have to deal with cases of this kind, where infection is introduced into the uterus, it is not well to trust to the *vis medicatrix naturæ*, but it is here that the aseptic gynecologist comes in. Although it is hard to always draw the line between the one and the other, we naturally all tend to become extremists and say, well, what harm is there in scraping the uterus out, whether infected or not. We know we can do it aseptically and we do it, and yet the case or cases may get along just as well without any effort on our part. If we are called a distance of ten or twenty miles to see a case, what are we going to do? We had better clean the uterus out thoroughly because we can not always trust the physician who has charge of the woman. It depends upon who does the curetting. There are some cases that I would rather trust to the *vis medicatrix naturæ* than to the doctor. If necessary, I would use a dull curette and not a sharp one, and instead of packing the uterus with gauze I would take a little swab, dip it in strong carbolic acid, and swab out the uterine cavity, thus killing any microbes that might be present.

Dr. C. S. BACON, Chicago—The discussion shows that the indications for interference in cases of inevitable abortion should be carefully drawn. In my judgment there are three indications for interference, hemorrhage, infection and the after-results. Hemorrhage is an indication for interference, but not for cleaning out the uterine cavity by operation in every case. Hemorrhage can be controlled by tampon, which stops it temporarily, and the uterine contractions finally expel the contents of the uterus; hence hemorrhage alone is not an indication for interference. Sepsis, which is determined by rise in temperature or by a bacteriologic examination of the discharge, is an indication for cleaning out the uterus in every case.

Then comes the question as to the method of entering the uterus, whether it shall be with curette, placental forceps or with fingers. In order to empty the uterus by the finger, which is the best way and most thorough, it is necessary to distend the cervix sufficiently to introduce the finger. This means dilatation by some kind of dilator. This dilatation is not so easily accomplished; it produces tears in the cervix, and it is questionable whether those tears or rents are not a source of infection and subsequent trouble. I am referring now particularly to infected cases, and hence it is a serious question whether the finger in this class of cases is the best instrument to use. The finger inside of the uterus may possibly give rise to infection. We know that in gynecologic work absolute disinfection of the finger is not so easy, so there may be danger in the use of the finger inside the uterus. Here is the place for the curette, not the placental forceps.

Then comes the third indication for interference, that is, the results succeeding abortion, the involution of the uterus. It is not at all proven that the results in the involution of the uterus are better after the removal of the decidua by the curette or by operative measures than when it is removed by nature. Therefore, for that reason, it is not settled that the curette should be used in all cases.

Dr. E. D. FERGUSON of Troy, N. Y.—If I were to make a criticism of the paper it would simply be its title, and instead of the term inevitable I would use the term incomplete. The difficulty of deciding inevitable abortion until it does become incomplete is manifest to everyone. If we have an incomplete abortion we have at once a pathologic condition, and just what the nature of this condition is we do not know; but there is something at fault and it may imply disease in connection with the uterus, and very possibly it implies the existence of disease germs and it may be proper to tampon for temporarily controlling hemorrhage. If we have incomplete abortion and are having hemorrhage, it is our duty to make it a complete abortion. If we proceed, after thorough sterilization of the vulva and vagina, just as we would do in a case of vaginal hysterectomy, we are not going to carry any more diseased germs than already exist within the uterine cavity. We are going to give the woman the best chance for recovery. I frequently encounter these cases, and of the number I have treated I can not recall a single fatal case, except in those where malpractice has been resorted to and a highly septic condition existed in the beginning. As to how to clean out the uterus, it is a matter every gentleman here will have to decide according to what he finds most convenient and dextrous. My own method is to place the patient in a lithotomy position, bring down and steady the uterus, dilate the cervical canal if necessary, take a pair of sponge forceps into the hands, make a simple loop, pass it into the uterus, first feeling with the finger to see if there is any placental mass, and it brings it out without any traumatism. I next pass the finger and see if I feel any mass. If I do, I remove it with a curette, steady the uterus above the pubes with one hand, so that I know where the curette goes; feeling in this way two or three times with the finger and the use of the curette the uterus can be cleaned out thoroughly. Sometimes I put in gauze if there is hemorrhage, and I have seen it some cases after thorough curetting, in which case it seems to be of service. I swab out the uterus with tincture of iodin. I never irrigate the cavity of the uterus.

Dr. T. M. BURNS of Denver, Colo.—The title of the paper was inevitable abortion. Inevitable abortion can be diagnosed when the patient has increasing painful uterine contractions, increasing dilatation of the cervix or increasing hemorrhage. If we have one or two or more of these, we have a case of inevitable abortion. The treatment is expectant or active. I have no use for the expectant treatment and I do not believe it is used by many physicians at the present time in foreign countries, particularly in Germany. The dangers of the expectant plan of treatment are sepsis and subinvolution. When you use the expectant treatment you are expecting the patient to get well. The patient has a temperature of 100 degrees, you expect it to be less tomorrow, and it runs up. Probably the expectant method is all right for the first month. Of the active treatment there are two methods, tampon and ergot, or rapid dilatation. The

tampon and ergot are the best in the majority of cases, although I frequently do not use them, and because we sometimes, by rapid dilatation, lacerate the cervix in order to get out the fetus, particularly in a three or four month pregnancy. The fetal head does not correspond with the diameter of the cervix. Dilatation in some cases may produce prolapse of the uterus. The point I wish especially to speak of is the finger *versus* the curette. In all cases the finger should be introduced into the uterus, then you know whether you have the uterus empty or not, otherwise you do not. You can always introduce the finger into each corner of the uterus if you give the patient a sufficient amount of chloroform. Remove the ovum or fetus with the finger, not with the curette. The curette is only used to remove what is left and can not be removed with the finger.

I do not see how anyone with experience can consider the expectant treatment in these cases. Dr. Parvin says rupture the membrane. I have not personally seen a case where rupture of the membranes has occurred without abortion. A friend told me of a case of four and a half months in which the membranes ruptured; he felt the fetus and told the woman that the uterus should be emptied at once or she would have blood poisoning. She told him she would wait. She did wait; was confined in normal labor, the membranes growing over the tear.

Dr. NEWMAN (closing the discussion)—The title of my paper was inevitable or actual abortion and not threatened abortion. In the treatment I maintained that it is for the good of the patient to pursue the active plan, not only for her immediate safety but for her after-health. We know that comparatively few women die from abortion. The curette I use in these cases has a flexible shank with which one can thoroughly accomplish what he sets out to do. If the physician does this work imperfectly it had better not be done at all. There is more or less trauma, to be sure, in curetting the uterine cavity, but you need not add to the danger of infection if you thoroughly sterilize the uterus. I used the term *inevitable* advisedly, because I wished to make my remarks refer only to such cases of abortion as can not be averted. A partial, incomplete or threatened abortion sometimes may.

THE MIDWIFE QUESTION IN AMERICA.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY C. S. BACON, M.D.

PROFESSOR OF OBSTETRICS, CHICAGO POLYCLINIC AND PRESIDENT OF OBSTETRIC STAFF, CHICAGO HEALTH DEPT.

CHICAGO, ILL.

Presenting to your consideration a subject so generally avoided or neglected as is the midwife question, needs no defense, for there are many indications that its importance is becoming generally recognized. In Germany the improvement of the midwife class has recently attracted much attention, as evidenced by the propositions concerning the repetition courses, the periodic examinations, the lengthening of the terms of study, the improvement in the condition of the midwife, and the proposals for establishing pensions for superannuated members of the body. In France, new terms of study and new regulations have been established. In England, a persistent effort is being made by some of our most eminent colleagues to secure a registration and regulation of midwives by means of an act of parliament. In this country, the Boards of Health of a few States are endeavoring to check some of the evils of unregulated midwife practice and irresponsible midwifery teaching, by specifying certain requirements for midwife schools and requiring examinations of those who wish to engage in practice. These efforts have been seconded in some instances by efforts of local boards of health, the most important of which is the recent attempt in Chicago to secure a local registration of midwives and regulation of their practice.

I wish to preface what I have to say of description and criticism of their condition with the statement that I am not one of those who are hostile to midwives and believe they should be entirely abolished. I recognize the fact that they are here chiefly because of the existence of a demand for them and that they do a work which can not be done by any other agency. My criticism of them is made in no unfriendly spirit, but in the conviction that the medical profession should recognize the importance of the question, consider it carefully and seek to shape its development, rather than to let it drift on until it may become much less easily manageable.

Although to a certain extent the midwife question, like the midwife, is an imported article, it has now acquired American traits until we now have as important, although strangely neglected, a midwife question as confronts the profession and the statesmen of Germany, France and England.

Midwives, as a specially educated and licensed class of women allowed to attend cases of normal labor, are not native to America, but are imported from the continent of Europe. The American and English customs in this respect are similar. The American women have always been accustomed to employ physicians to attend them in confinements. In certain regions or in exceptional cases where a physician could not be secured, a neighbor woman was called on to give what little help might be required. The immigrants from Europe were accustomed to midwives and brought with them a demand for midwife services. This demand was first satisfied by the midwives educated in Europe, who came over with their patients, but soon midwives made in this country began to multiply until now the class is important in numbers and not lacking in influence. It is chiefly found in cities and large towns, for there are congregated the immigrants and their descendants whose demands have called the class into existence.

In speaking of the present condition of the midwife class in America I shall necessarily confine myself to some statements concerning them in Illinois, Missouri and Ohio. In Chicago there are about 900 women practicing midwifery, who attend about two-fifths of all the labors, that is about 25,000 a year. Of these about 800 are licensed by the State Board of Health and about 100 may be classed as irregular midwives, or charwomen, corresponding to the German Pfuscherinen. In St. Louis, I am informed by Dr. Henske, for many years identified with midwife education and editor of the recent *American Midwife Journal*, that about 75 per cent. of all confinements are attended by midwives. From his mode of calculation I am inclined to think this an excessive estimate, but it will serve to show that there the midwives are important from a numerical standpoint. Dr. Robert Stewart of Cincinnati, estimates that in his city the midwives attend about five-eighths of all the labors.

There is a somewhat prevalent idea that midwives who have been educated in Europe stand higher than those educated here. It is undoubtedly true that those midwives who have been trained in the large hospital in Vienna, or who have personally met and listened to one of the many competent and skilful teachers of other German schools, have a better idea of their position and duties than those who have been deceived and swindled in some of our so-called midwife schools. Yet one who knows from personal observation the very limited qualifications of the midwife student in Europe can easily comprehend that the immigrant midwife who came here some years ago,

when the teachings of asepsis were still imperfect, and whose practice has been quite irresponsible and unregulated, has become much poorer than she who remained in Europe. We know, also, that the midwife class in Europe is still in a condition which calls for much criticism on the part of our European colleagues.

However poor the midwife from Europe may be, there is no doubt that the general average of the midwife class has been made much lower by the addition of the midwives produced in America. The factors which have contributed to this condition of the class are, the nature of the social element from which it is recruited, the character of midwife education, and the lack of State regulation. These factors have produced a class of ignorant, incompetent midwives who, outside of their legitimate duties, perform abortions and engage in other illegitimate practices, and in this way has secured the contempt of physicians. While there are numerous exceptions to the details of this picture, I think the general color is true. Midwives are often compared with our trained nurses, to their disadvantage. America is proud of her trained nurses, who form a class in society but little below the school teachers, if it be proper to speak of social grades in a democratic country. Nurses scorn to be classed with midwives, who often rank with washerwomen and indeed frequently combine these quite different occupations. Nurses are often graduates of high schools or are ex-teachers and come from a very respectable class of the community. Midwives, on the other hand, are often poor widows, or wives of laborers, who help to support their families by the small fees they receive.

Midwife education has been completely neglected by the teachers in the medical colleges of the country and there is no generally accessible data concerning them. The reports of the Commissioner of Education contain no information about midwife schools, although nearly every other branch of education has been made the subject of investigation and the subject of training schools for nurses is quite fully considered. The Commissioner of Education replied to an inquiry of mine, that there was no information in the possession of the department. Until recently the subject has been quite outside of the notice of the State boards of health. Recently the boards of health of a few States have made certain requirements of midwife schools, as to length of term, teaching facilities, etc., as requisites to recognition. Both Illinois and Missouri demand that a midwife school shall require a student to attend two terms of five months each. They also have an examination of all midwives before giving them licenses to practice. Ohio has a law requiring the State Board of Examiners to examine and license midwives. Formerly, however, there was no control of the schools, a condition that still obtains in many States; the result was that an utterly irresponsible midwife or an unknown or disreputable physician was able to establish a midwife school for the sake of the fees and for the illegal and immoral business that would come from such a source. Of course such a school has no teaching facilities and little or no clinical material. I know of poor women who could with the greatest difficulty raise the required fees, going to such a swindling institution, taking the so-called course, and graduating without having seen a single case of labor. It is not necessary to go into further detail to show that these so-called midwife schools were very often frauds of the worst description.

In importance second only to a good education of midwives, is an efficient system of midwife control or regulation. Without it the best trained midwives are liable to degenerate in their practice and overstep the balance of their legitimate work. With it much may be done to insure the community against the dangers to which it is exposed from poorly trained midwives. The general and almost complete neglect, in America, of a system of midwife recognition, has led to the following results: Inefficiency in the details of their legitimate obstetric practice, especially in the line of asepsis, with a consequent excessively large rate of puerperal infection; assumption of the management of abnormal labors; assumption of medical and surgical practice quite outside of obstetrics, and the illegal and immoral practice of the induction of abortion.

The failures of midwives in asepsis are due both to imperfect teaching and to lack of control of their legitimate practice. The dangers from this source are well illustrated by a study of the mortality records of Chicago. In a paper presented to the Chicago Gynecological Society last year, I gave the results of a study of the mortality from puerperal infection in Chicago for the last forty years. In these tables I have obtained the average annual mortality rate from puerperal infection for the decennial periods 1866 to 1875, 1876 to 1885 and 1886 to 1895. In the first period there were one hundred and twenty-seven deaths from puerperal infection for every 1,000 deaths from all causes of women of childbearing age, namely, women from 15 to 45 years old. In the second decennial period there were were ninety-seven deaths and in the last pesiod seventy-three deaths. The rate based on the number of confinements shows about the same rate of decline. In the three periods, for every 1,000 confinements the rate was 7.6, 5.5 and 4.1 respectively. These figures show indeed a decline, and so far are encouraging. The decline corresponds in time to the spread of the teachings of Lister, and is no doubt due to the excellent teaching of asepsis and antisepsis in our medical schools. The fact remains, however. that the mortality rate from puerperal infection is still very much too high, and indeed has increased during the last four years. In 1891 it was sixty-two per 1,000 deaths of women of childbearing age; in 1892 it was sixty per 1,000; in 1893, sixty-five per 1,000; in 1894, seventy-one per 1,000; and in 1895, sixty-nine per 1,000. In other words, puerperal infection still kills more women in the prime of life, women of the greatest worth to their families and to the state, than any other cause except consumption. While it is impossible, from the imperfect records of the registrar's office, to say whether physicians or midwives are responsible for this large continuing mortality, it seems very certain that the improvement for the last decades is due to the better training of medical students, and that the bad results of the last few years are largely due to midwife practice which has not made corresponding advance.

The management of abnormal labor is everywhere recognized as outside the scope of the legitimate work of midwives. It demands not only a trained technic, but a careful study of indications and conditions which is only possible to one trained in all branches of medicine and surgery. How can a woman of limited education, in a course of study of four to six months, learn to appreciate the indications for operative interference, to say nothing of the technic of difficult and

dangerous operations? The most she can do is to learn the progress of normal labor and to recognize such deviations therefrom as to require her to call for assistance. Yet in the absence of control, midwives have come to assume their right and ability to do the most important and dangerous operations. They often oppose the calling of physicians for assistance, and with an amazing audacity and a lack of comprehension of their responsibility, assume the gravest risks with greatest indifference. Among many interesting instances now being collected by the health department of Chicago, I may cite one which illustrates this statement. One of the confident domineering midwives had a case of primipara in whom she considered forceps indicated. With the help of the husband to give chloroform, she attempted the extraction of the child, but after a somewhat lengthy struggle with the half anesthetized woman was compelled to desist. The husband then wished to send for a physician, but was opposed by the midwife, who at last, to carry out her will, locked the door of the room and put the key in her pocket to prevent the exit of the husband. The poor man was then compelled to assist again in the anesthesia until, after two hours of fruitless struggle, the midwife relented and allowed the husband to call a physician. A serious puerperal infection afterward developed, which ended fatally. Such cases might be many times multiplied, were it necessary to further illustrate the dangers of uncontrolled medical practice.

The assumption by midwives of medical and surgical practice is not uncommon. Not long since I saw a young girl with an ulcer on the knee, three by six inches, which under the care of a midwife had gradually reached these dimensions from a very small sore. The assurance of midwives in treating such cases is another proof of the necessity of controlling them.

The practice of abortion has become a very great evil, largely as a result of a lack of midwife control. Its prevalence is so generally known to all physicians that it is only necessary to refer to the fact; the amount of disease that results therefrom is also universally recognized. The number of deaths that results from this cause is a not unimportant element of puerperal mortality. Some of these cases in Chicago were the immediate cause of the movement which led to the establishment of the system of midwife regulation that now prevails. Dr. Reilly, the assistant health commissioner and the originator of the movement, in the monthly report of the health department for June, 1896, calls attention to the fact that a recent brief search of the coroner's office shows thirty-four deaths due to the criminal practice of midwives. The details of many of these cases were simply sickening. In one case, a midwife admitted in the criminal court that she had used the catheter found on postmortem pushed through the uterus and lying in a bed of pus in the omentum. The fact that in this case as well as in all others the midwife escaped punishment, showed that our criminal laws are powerless to remedy the evil. An efficient control of midwife practice may be expected to prevent such a condition, since in those countries where midwife regulation prevails, such cases are altogether wanting or extremely rare.

In other countries the great difficulties that may arise in securing midwife regulation by law are illustrated by the futile attempts made in England to secure the passage of the Midwife Registration Bill. Here we may often secure, through the boards of health, quite as important results as are obtained by laws. The comparative ease with which similar regulations may be obtained in this country through the powers of the boards of health is illustrated by the history of the midwife regulation rules of Chicago. The city health department obtained permission from the Illinois State Board of Health to formulate rules governing midwives which, on approval by the State Board, should have the force and effect of the State Board's rules. Under this permission the rules were framed which were approved by the State Board July 9, 1896. These rules, twelve in number, follow in general the lines of the Austrian regulations. Rule 1 defines midwives to be only those authorized to practice midwifery by the State Board of Illinois. Rule 2 provides that all midwives must register with the medical inspector of midwives in Chicago. Rule 3 provides that midwives shall attend only cases of natural labor, which is defined to be cases of head presentation at term, where no specified abnormal condition is found. It is also provided that in cases of unnatural labor a physician must be called, and if the patient be too poor to pay a physician, a department obstetrician shall be called. Rule 4 enumerates the abnormal cases where a physician must be called. Rule 5 specifies the general duties of a midwife to the patient as respects her visits, nursing, etc. Rule 6 forbids a midwife to come in contact with cases of contagious disease or attend a case of puerperal fever. Rule 7 gives details for preventing puerperal fever. Rule 8 forbids a midwife having medicines or instruments for operations. Rule 9 provides for keeping a case-book. Rule 10 provides for reporting births. Rule 11 concerns the management of the apparently dead-born. Rule 12 concerns the confidences of patients.

For the purpose of assisting in the execution of these rules, the obstetric staff of the help department was organized, consisting of seven honorary consultants, fifty-one department obstetricians and three pediatricians. Each obstetrician has charge of a district. The most eminent men in the city consented to serve on the staff without pay. The duties of the staff are to attend cases when called on by the midwives, to inspect her book and outfit and in general to help in carrying out the regulations. The staff perfected its organization by electing officers and arranging for regular bi-monthly meetings. In the meetings thus far held the subject of the prevention and treatment of puerperal infection has been especially discussed as well as the reports of cases by the registrar.

It is still too early to say much of the results obtained. The Board has been organized only about seven months and it has been the policy of the department to go slow and consider carefully the difficulties to be met rather than to arouse much opposition. A fairly complete registration of midwives has been obtained and sent to the various district obstetricians. The midwives are keeping their books fairly well. The department obstetricians have assisted in a number of pathologic cases to which they have been called by the midwives; they have also investigated a number of cases of deaths from puerperal fever with the result in some cases of thoroughly impressing the offending midwife with new ideas of their responsibility. The punitive part of the regulations is still in doubt, as no test case has yet been made, in the courts, of the legality of the rules. We believe that

the revocation of licenses by the State Board will be sufficient to accomplish all the ends aimed at.

The foregoing description of the condition of the midwife class in America suggests the needs of the future:

1. It may be reaffirmed that the midwives are needed. There is a demand for them that is not filled in any other way. There is a large class of people who can not afford to employ a doctor, even if they could obtain his services for a very low fee, for they would still be in need of a nurse. The lying-in dispensaries are not equivalent, for the patients are not paupers who demand gratuitous services and they will not allow themselves to be used as clinical material. Moreover, the prospects of the future show no hope for a decrease in the number of the poorer classes who must depend on midwives, but a study of the social condition makes it probable that their numbers must greatly increase.

2. There is a need for a general and efficient regulation of midwife practice and midwife education. This can best be secured by the State boards of health if they are supported by the physicians of the State. The attacks recently made on the health departments can be efficiently met by organization, and the need of thorough local organization to support the State medical boards is becoming generally recognized.

The need of efficient medical education is so apparent, although heretofore so strangely neglected, that it needs no discussion. It should be of such a character as to enable a woman of average intelligence and a common school education to perform the legitimate functions of a midwife, that is, to conduct a normal labor safely and care for the puerpera and child. Such an education can be given in the course of ten months by a school that has proper teaching and clinical facilities. In this connection, I take the opportunity to suggest that a midwife school can be carried on best in conjunction with a medical college. A college has the facilities for teaching anatomy, physiology, mechanism of labor, asepsis, etc., by means of preparations, manikins, charts and laboratories, and its clinical material can be utilized by the midwife students without detriment to the medical students. Indeed, I believe that the clinical teaching of midwife students, which consists very largely in a drill in obstetric nursing in conjunction with medical students, will be very valuable to the former in showing them their especial function, and to both in indicating and establishing their popular relations. The midwife will come to regard the physician not as her enemy but as her counsellor and helper in difficulties, and the physician will learn to appreciate and respect the properly qualified midwife.

In conclusion I will say that in planning a new system of midwife education and regulation we should take account of the history of the midwife class in Europe, recognize its bad features and the causes that have produced them, and avoid the mistakes that have been made in dealing with them. I believe that Professor Fritsch is right in ascribing, as a very important cause of the unsatisfactory condition of the midwife class in Germany, the poor material from which it is recruited, but that he does not go to the root of the matter when he proposes his remedies. He suggests as a remedy, the attraction of students from a better class of the community by making the condition and work of the midwife students less repulsive and allowing them to study in all obstetric hospitals, not confining them to the midwife schools. It seems to me that Dr. Dietrich, formerly of Liebenswuerda, has a much more efficient plan in his restriction of the number of midwives and providing for a fair living compensation for each. He divided Liebenswuerda into a number of districts, each having a fair number of births annually for one midwife to attend. In a district only one midwife is allowed, who is chosen in such a way as to provide against favoritism and secure only a competent and responsible woman. She must keep an account book in which is recorded all her income from patients. A minimum charge is established which she must hold to. In case her income at the end of the year falls below a certain amount the State must make up to her the balance. By this plan a woman is insured a fair living if, by proper training, skill and faithfulness, she proves herself a good midwife. It would hardly need the test of experience to convince one that this plan will attract a much better class of women to study midwifery and secure a much higher average of midwives. While such a scheme may sound quite utopian or revolutionary when proposed for adoption in democratic America, where free competition and the widest individualism holds sway in theory, yet the history of our trade unions on one side and the protective organization of capital in trusts, etc., on the other, shows that at least the voluntary limit of competition may prove very efficient. I suggest that those who have at heart not the improvement of a class for its own benefit, but through this improvement the betterment of a greater mass of society, should not neglect to study the question thoroughly and fearlessly.

DISCUSSION.

Dr. E. H. M. SELL of New York—Dr. Bacon does not propose to have such a class of midwives as has been referred to, believing that they are uncalled for. I agree with him that not even in the darkest corner of this widespread country is such a class of midwives called for. We should endeavor to get rid of this uneducated class, and if we are to have midwives they should be properly educated.

Allow me to say a few words regarding what I have seen in European cities, as I have spent considerable time abroad. The midwives of Vienna have to pass an examination in regard to their general education first; then they have to pursue a thorough course of instruction under one of the best obstetricians, and after a thorough examination they get their certificates to practice. After passing this examination in midwifery they are only permitted to accept normal cases and are obliged to call in assistance in every abnormal case, or else have it transferred to the hospital. While there is room for the educated midwife in some of our large cities, among the poorer classes, there is no room for such midwives as we have in New York, and I presume you have them here (Philadelphia) and in other cities. I was once called in consultation by a physician, and what did I find? I found a midwife pulling and pulling, trying to deliver the child. What the presentation was originally I could not say. It was transverse, the arm out of the vagina, and it was a wonder to me that it was not pulled out of its socket. The woman was exhausted. I proposed to perform the only operation, namely, decapitation and deliver, and I told them it was necessary to get the woman into the hospital at once or else she would die undelivered.

Dr. JOHN M. DUFF of Pittsburg—I have seen the evils of midwifery as other practitioners have, but we have to take the conditions as they are, and I can not see how we can avoid having midwives to practice. One of the great evils is that they reach beyond the line; they invade the field of practice in other directions. But with the present condition in this State, where they are not licensed to practice, they practice clandestinely, notwithstanding the fact that we might wish them out of the way altogether. As a medical body, we should encourage the education and licensing of them, so that they will not practice clandestinely and therefore do a great deal of harm which they would not otherwise do. Of the two evils we should choose the lesser. If clandestine midwives were compelled to leave

the field it would be a godsend. When properly educated they will take care of the clandestine ones; they will see that they are brought before courts of justice for invading other fields. But it is astonishing how many abortions are being produced by these same women. Within three months I traced a number of abortions, I have forgotten the exact number, but I believe it was in the teens, to one midwife in my neighborhood. In the position we are in today the wisest thing for us to do is to make the best of the matter and secure the best possible material we can.

Dr. RACHEL BENN of Philadelphia—I believe that we have no use for midwives in America; that we have too many physicians who can do this work properly, and the midwife need not be recognized by the profession. Another point is, How can we tell when pregnancy is going to terminate in a normal birth? In a case of postpartum hemorrhage after a normal birth, the midwife would hardly know what to do. It seems to me accidents during childbirth are sometimes so serious that we should have the services of skilful physicians, who ought to be allowed to take charge of obstetric cases. I have been working in China, where midwives originated. There are no physicians there, that is, real physicians, but there are those who call themselves such, and these are not allowed to attend women, and it is here that midwives flourish. They are not educated.

Dr. JAMES F. BALDWIN of Columbus, Ohio– I think there is a field in this country for the educated midwife. I know of no work which the doctor does that requires as much time, which interferes so much with his other work and for which he is so poorly remunerated, as his obstetric work, and that too in well-to do families. In this country we have comparatively few of the very poor, as they have in Germany, and these must go to hospitals or be treated by charity physicians. We have a large class, which is increasing in number, who are too poor to pay a physician even a moderate fee for his services, and are unable to pay a nurse. The physician in these cases must go unpaid; there is perhaps no nurse, and the woman is left to the mercy of some neighboring woman to assist her in the interval. The midwife in my city is in the habit of attending a woman in her confinement and visiting her daily for a week or ten days thereafter, looking after the mother and washing and dressing the child. This is a labor which the doctor should not perform. In country districts or communities this work is done perhaps five or ten miles from the physician. The physician in some of these cases may be obliged to remain ten or twenty-four hours to attend to a patient, and as he has other patients to attend to he can not afford to go this distance to attend a case of this sort. We should have educated midwives to take care of these cases of normal labor. The truth is that formerly our midwives were not educated, and almost without exception they were dirty. A year or so ago I traced three cases of death to a single midwife. I reported the matter to the health officer and succeeded in suppressing her. When our State law went into effect, requiring the examination and registration of midwives, we hoped something would be done. But the examination was little better than a farce. Acting on suggestions from physicians and others, in connection with the Ohio Medical University, we started a department of midwifery, requiring an attendance of two years of six months each. We intended to give instruction not only in midwifery, but instruction as regards the anatomy of the pelvis, the physiology of menstruation, gestation, etc., and perhaps a little in regard to the therapeutics of the most commonly used drugs, and teach them that ergot should not be used under any circumstances. We advertised the matter in our annual circular, which went to about twenty thousand physicians. We thought the action of the State Board of Health would aid the matter a little, but I am sorry to say that we did not get a single application for midwifery. After trying this for one year the matter was discontinued by a vote of the faculty at its annual meeting at the close of the year. We must look to the State Board of Examiners and Registration for the enforcement of such rigid requirements, compelling midwives to have a sufficient amount of education to do fair work. I do not see why the midwife should not be educated so as to look after cases of postpartum hemorrhage.

Dr. T. M. BURNS of Denver—I believe there are only two reasons for midwives, and these are a small fee and because some women would rather have women than men to attend them. Both of these can be done away with. We have plenty of female physicians, and we have a large number of dispensaries. I think the solution of the midwifery question will be done by the dispensary. In New York City, at present, one dispensary has handled seventeen hundred cases in one district, and it is only a short time when the midwife there will be a thing of the past. One of the speakers said that the physician could not make daily calls in the country districts on account of the distance. In the more important cities we have charity nurses to make calls daily, taking care of the patients.

Dr. HENRY P. NEWMAN of Chicago—We are greatly indebted to Dr. Bacon for this contribution, for he is one of the co-workers in this work, in that he has organized the method he has given you here to-day; and we are still further indebted to him for having carried it to a greater perfection, and I think we all acknowledge the good which will come from it in time. The midwifery evil is one which we have to contend with, and according to some of the suggestions that the doctor has enunciated, he has solved the problem to a certain extent.

What the last speaker said in regard to cities will apply to a certain extent, but there are districts which can not be reached even by the charity nurse. Outside of cities we have very few of them; neither have we women physicians, particularly among the foreign element, and I am afraid we will have this to contend with for all time. However, I believe it can be met in the manner referred to and judiciously disposed of, if others will take the interest in it that Dr. Bacon has, and use means for supervision.

Dr. BACON, closing the discussion—In reply to the remarks made by Dr. Burns, with reference to establishing a charity for confining poor women, it seems to me an unwise proposition from a social standpoint, and if it were practicable, it would not work well. The patients who employ midwives are not paupers, and should not be made so. They should not receive the attention of dispensaries and charity nurses. We all know that the dispensary is to a certain extent abused. Let us not carry that so as to make a very large part of society paupers. The fact is that from two-fifths to three-fourths of the labors in some of our large cities are attended by midwives. Is it possible that there is no demand for midwives when such a state of affairs exists? They must be recognized and the condition met in a manner not to pauperize such a large number of women.

THE TREATMENT OF CIRCUMSCRIBED PELVIC HEMORRHAGE.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1–4, 1897.

BY M. ROSENWASSER, M.D.

CLEVELAND, OHIO.

When fluid blood escapes into the normal pelvic cavity it can not be palpated, because it forms no distinct resisting mass. The hemorrhage is *free* and unlimited.

If the patient survive, the blood soon coagulates; the clots gravitate to the lowest part of the pelvis; the dependent intestinal loops are floated up above the clot, and all other pelvic viscera are displaced in the direction of least resistance. The unabsorbed blood serum, together with the lymph poured out by the surrounding peritoneal surfaces, covers the blood clot, fills the interstices between the intestinal coils, fills the gaps between the displaced viscera and, becoming organized, constitutes a false membrane of varying thickness, which more or less effectually shuts off the blood mass from the rest of the peritoneal cavity. This blood mass together with whatever débris may be enclosed within, can be readily palpated both externally and internally. The longer the lapse of time between the hemorrhage and the examination, the more distinctly palpable is the mass.

The mass can be palpated earlier when the hemorrhage takes place between the layers of the broad ligament, or into a space formed by pre-existing adhesions, because the blood is surrounded by a limiting resistant wall.

Whenever the symptoms warrant a diagnosis of intrapelvic hemorrhage, and there is present a peculiarly resilient, immovable, fairly defined mass, the case is one of *circumscribed* hemorrhage.

Free hemorrhage is always intraperitoneal. Cir-

cumscribed hemorrhage is practically extraperitoneal, because the false membrane or the layers of the broad ligament shut off the mass from the rest of the peritoneal cavity.

Rupture of the false membrane or broad ligament may convert a circumscribed into a free hemorrhage. Both forms of hemorrhage would then be present at the same time.

When seen a few days or weeks after its occurrence the most astute clinician can not say whether a hemorrhage was originally intra- or extraperitoneal, whether hematocele or hematoma. But he can positively say whether it is a case of circumscribed hemorrhage. The graduate fresh from the class-room will find no difficulty in distinguishing circumscribed hemorrhage from free hemorrhage, no matter what the pathology may be.

To avoid confusion and to cut loose from misleading terms, such as pelvic hematoma, pelvic hematocele, extra- and intraperitoneal hematocele, the suggestion has been made and is now repeated, to distinguish but two forms of pelvic hemorrhage in plain, unmistakable terms; namely, *free* and *circumscribed* hemorrhage.

Pelvic hemorrhage may be due to injury, to rupture of diseased or dilated blood vessels, to reflux of menstrual blood, to rupture or perforation of a viscus, or of a tumor; but in most instances the cause is either tubal abortion or ruptured ectopic pregnancy.

It is all but universally conceded that abdominal section for early removal of tubal gestation is safer and more rational than the use of electricity or the injection of morphin.

No one today questions the propriety of opening the abdomen to check free hemorrhage, if the symptoms warrant even the suspicion of such an accident.

But the cases which we are called upon to see early, whether before tubal rupture, or soon after hemorrhage has set in, comprise but a small proportion, not more than one-fourth, of all cases of pelvic hemorrhage. The bulk of these cases are seen days, often weeks after the initial symptoms. Many are not recognized, and many more are not brought to our notice because the symptoms had not been severe and recovery has taken place. They are seen by us as circumscribed pelvic hemorrhage.

The encysted blood from ruptured vessels or from tubal reflux, when not infected, nor in quantity too large for absorption, will disappear in a few weeks to a few months without detriment to the patient. The only treatment necessary is absolute rest.

The same is true in the majority of cases of circumscribed hemorrhage due to ectopic gestation; not only the blood clot, but even the early product of conception (two to three months), are capable of absorption.

Not more than 40 per cent. of cases of circumscribed hemorrhage due to ectopic gestation require active surgical interference.

I have seen in my own practice forty-six typical cases of hemorrhage due to extra-uterine pregnancy. Of these, eleven were of the free variety requiring emergency operations, and thirty-five were cases of circumscribed hemorrhage. Of the latter variety twenty-three have been previously tabulated,[1] and the remaining twelve are herewith submitted in similar form.

When called to a case of this kind, unless there is a distinct indication for immediate operation, I order absolute rest under reliable supervision—so-called *vigilant delay*. This close supervision must be in the hospital whenever practicable, or at the home of the patient in charge of a competent attendant. While this precaution for the safety of the patient has been insisted on in every instance, I have not in a single case of the thirty-five so treated been flurried, or compelled to do an emergency operation. When an indication arose forbidding further delay, there was always ample time for deliberate action.

Two cases are submitted in detail to bear out these statements:

Case 1.—Dr. D. S. Hanson requested me to see Mrs. A. S. on Feb. 22, 1895. She was 30 years old, had been married six years and had had three children. The last was one year old and still at the breast. The mother's previous health had been excellent. She had menstruated for the first time since the birth of the child on January 15, the flow being scant and lasting only two days. Two weeks later she began flowing and has continued since. There have been no clots, but shreds of membrane. She has had three attacks of sharp pain within the past week, resembling the attack of today, though not so severe. While sitting, holding the baby on her lap, she was taken suddenly with a severe chilly sensation, accompanied by intense, agonizing pain in the abdomen, and became faint. She was carried to bed. Dr. Hanson found her looking blanched, as if internally bleeding, with small pulse, impressing him as if she was a very sick woman. At the hour of consultation the patient had rallied. Her pulse was 96, her temperature 100 degrees. The pain had been relieved by morphin. A large globular, elastic, somewhat tender mass filled the right side of the pelvis and the Douglas *cul-de-sac*. The cervix was pushed forward against the symphysis. The abdomen was slightly distended, but not tender. Her pendulous, fat abdominal wall made me shrink from attempting immediate operation. Supervision was advised. Though prepared to hear from the patient at any time, I did not see her again until April 8, six weeks later. Dr. H. reports that during this interval she had had an occasional rise of temperature (not over 100 degrees); that the flowing had stopped for a week, to return again, first a dark blood with clots and shreds and since April 4 a red fluid blood. After the first week of her sickness he had seen her at intervals of a few days, now he saw her for the first time in a week. Her temperature is normal, pulse 100. She has no pain, good appetite and sleep and would like to get up. The cervix is still slightly forward, though easily reached. The enlarged uterus is plainly outlined against the globular tumor in the *cul-de-sac*. The tumor is of the size of a small cocoanut. There is now no tumor in the right side, but a slight tenderness. After two weeks she was allowed to get up and has enjoyed excellent health since.

Case 2.—I saw the second case July 5, 1896, at the request of Dr. A. J. Cook, who had correctly diagnosed it before sending for me. The woman was 26 years old, had been married five years, had had two children, the last three years ago. Menstruation had been regular until May 1, since which time there had been no flow, excepting a few drops three days ago. She thought herself pregnant, though she did not feel the usual nausea. She had felt quite well until twelve days ago, when she had some colicky pains. These continued until a week ago, when she was taken suddenly with violent pains in the right side of the abdomen and with nausea. She had to go to bed at once, but got up the next day and the following days, being compelled however to lie down daily on account of weakness. This afternoon (July 5) she was again seized with pain similar to that of a week ago, but worse. She also had some rectal tenesmus. Though under morphin when seen by me, she was suffering sharp pain in the hypogastrium. Her lips and conjunctivæ were pale. Her pulse was 88; temperature 100 degrees. The hypogastrium, especially the right, was quite tender. The cervix was large and was pushed forward by a mass lying at the right of and behind the uterus. On account of the tenderness of the abdomen the mass could not be well outlined. Her pulse being good, I did not deem immediate interference necessary, but had her removed to the hospital for careful watching. By July 11 she was free from pain, had a pulse of 74 and a normal temperature. The mass in the right could now be well defined, filling that side of the pelvis. July 14 she was again taken with sharp, peritonitic pain through the right abdomen, and there was increased tenderness behind the uterus; pulse 108; temperature 100.2 degrees. She was

[1] "Transactions of the Amer. Assoc. Obstetricians and Gynecologists 1893 and 1894, Vols. VI and VII.

CASES OF CIRCUMSCRIBED PELVIC HEMORRHAGE.

No.	Medical attendant.	Age.	Number of children.	Last child.	Disease continued from	Disturbance of menstruation.	Size of Tumor.	Indication for operation.	Operation.	Duration of disease.	Result.
1	M. R.	37	4	5 yrs.	Nov. 16, '94, to Feb. 15, 1895.	Missed two periods. Attack sudden with collapse after having flowed five weeks.	From iliac fossa to liver.	Sepsis.	Dec. 22, 1894.	Previous to operation five weeks.	Recovery.
2	Dr. D. S. Hanson, Cleveland . .	30	3	1 yr 8 m's ing	Feb. 15 to April 22, 1895.	Last menses five weeks ago. Flowing past three weeks. Attack sudden. Flow continuing six weeks after attack.	Filli'g right pelvis, and pouch to 3 in. above brim.	None.	. . .	Nine weeks.	Recovery.
3	Dr. F. W. Herbkersman, Cleveland. .	25	0	. .	June 23 to Aug. 24, 1895.	Missed one period. One month later seized with sharp, cramp-like pains and fainted; two weeks later, similar attack; flowing since first attack.	Within 2½ inches of umbilicus.	Recurrent hemorrhage.	July 27, 1895.	Previous to operation five weeks.	Recovery.
4	Dr. B. E. Sager, Cleveland. .	37	1	16 yrs.	July 17 to Oct. 1, 1895.	Menses stopped suddenly, having lasted three days, usually six days. Two days later sudden agonizing pain, collapse; flowing five weeks.	Douglas' pouch to brim of pelvis.	None.	. . .	Ten weeks.	Recovery.
5	Dr. D. S. Hanson, Cleveland... . . .	32	3	3 yrs.	Apr. 25, '95. Absolute rest. May 19 to June 24	Repeated attacks of pain from time of menses, and tenderness of abdomen. Then sudden violent pain with formation of tumor in pelvis pushing uterus forward.	Size of three months' pregnancy.	None.	. . .	Five weeks' rest.	Recovery.
6	Dr. J. M. Friend, Cleveland. .	30	2	3 yrs.	June 7 to July 30, 1895.	Last menstruation only one day, then continued flowing a month with pain in left side. Seen June 28; no collapse.	First size of fist, later increas'd to double.	Growth of tumor.	July 1, 1895.	Previous to operation four weeks.	Recovery.
7	Dr. A. Pay, Cleveland. .	30	3	1 yr.	Jan. 28 to Mar. 15, 1896.	Taken at time of menstruation with intense pain and found in collapse on kitchen floor. Flowed for several weeks.	Reaching near umbilicus.	None.	. . .	Two months.	Recovery.
8	Dr. R. E. Skeel, Cleveland.. . . .	28	5	2 yrs.	Mar. 15, '96, but abs'l'te rest June 13 to July 16.	Menses due March 15; came with gush and labor-like pains; continued two weeks. Second attack with sharp pain in April. May 17 third attack and flowing since; no collapse.	Cocoanut in right pelvis.	None.	. . .	Four weeks in hospital.	Recovery.
9	M. R.	30	2	1½ yrs.	June 13 to July 11, '96, when she left hospit'l	Flowing one week when seen; labor-like pains past two weeks.	Reaching midway between umbilicus and symphysis.	None.	. . .	One month when she left the hospital.	Improved.
10	Dr. A. J. Cook, Cleveland. .	26	2	3 yrs.	June 23 to August, 1896.	Missed two periods; taken suddenly with violent pains in right abdomen; more violent attack one w'k later and again nine days later.	Filli'g right side of pelvis and cul-de-sac.	Recurrent hemorrhage.	July 16, 1896.	Previous to opera. ab't two weeks.	Recovery.
11	M. R.	33	3	4 yrs.	Nov. 15, '96, to March 20, 1897.	One week over time; intermittent flow two weeks at a time; severe bearing-down pain.	Size of orange in left pelvis.	None.	. . .	Four months.	Recovery.
12	Dr. G. R. Fell, Cleveland. .	33	2	5 yrs.	June 25, '96, to Feb. 22, 1897.	Missed two periods; sudden violent pain; syncope; peritonitis.	Size of eight months' pregnancy.	Peritonitis after missed labor.	Feb. 22, 1897.	Previous to operation 18 mon'hs.	Recovery.

REMARKS.

Case 1.—Late operation resulting from mistaken diagnosis. Convalescence from sepsis two months after operation. No fetus found. Health good. No trace of disease except scar and pleuritic adhesions. Reported in "Transact. Amer. Asso. Obstetric. and Gynecol.," 1895, Vol. viii.

Case 2.—Seen a week ago. Enjoying excellent health. See first case in present article.

Case 3.—First seen by me July 19, 1895. Sent to hospital for observation. Pain, increase of tumor and rise of pulse from 76 to 104 after rest of five days, lead to operation. No fetus found. Only blood clot and ovarian hematoma. Left hospital August 24; well since.

Case 4.—First seen by me Sept. 8, 1895. Case complicated by fibroid size of small cocoanut in right pelvis. Elastic tumor bulging out Douglas's pouch in left. March 4, 1896, examination shows oval tumor in right broad ligament size of cocoanut; not tender. Patient quite well.

Case 5.—Seen by me May 19, and ordered absolute rest. Recovered without a bad symptom. "Uterus is now movable as that of a virgin."

Case 6.—Seen by me in consultation. Had had no strict rest. Tumor increasing, Dr. F. operated, assisted by me. No fetus. Recovery complete; had baby eleven months later.

Case 7.—Seen by me Feb. 20, 1896. Large, somewhat tender, elastic tumor, bulging in vagina and rising above symphysis. Said to have been much larger. No fever. Absolute rest. Feels perfectly well.

Case 8.—Uterus pushed to left by boggy mass in right pelvis size of cocoanut. Operation advised when first seen in hospital, June 13. Operation declined. Rest ordered. Recovery complete; no trace of tumor.

Case 9.—Seen by me June 27 at hospital. Slavonic nationality. Information meagre. Pulse 108, temperature 99.7. Cervix pressed against symphysis by soft mass bulging into vagina and extending beyond fundus above, on left side. Patient very anemic. Could not be held at hospital as soon as she felt better.

Case 10.—Reported in second case in this article.

Case 11.—Came to dispensary. Would not go to hospital, not even to bed. When last seen ut·rus was movable. Mass only size of walnut. Appendages could be outlined.

Case 12.—Character of case not recognized at time of rupture. Went three weeks beyond term. Fetus died after spurious labor. Reported in full in "Transactions of Ohio State Medical Society," 1897.

now closely watched, anticipating necessity for operation. July 15, her pulse was 88, temperature 100 degrees. She felt easy. July 16, though the temperature was lower, being 99.8 degrees, her pulse had been rising since midnight, being 108 in the morning. There had at no time been any tympanites or vomiting. To my mind the rising pulse indicated active hemorrhage. Operation was now decided on.

Operation: Present Drs. Cook, Dutton, Barnes and Skeel. Chloroform. Incision four inches. Abdomen full of free and clotted blood. The tumor consisted of the enlarged ruptured right tube, enlarged ovary and the greater upper portion of the right broad ligament. These were ligated with catgut, chain stitch. Behind and below the uterus was a mass of loose, coagulated blood. After this had been scooped out, another mass was found filling the cavity of the rectovaginal pouch. This was separated from the layer of loose blood above by a thin spider-web membrane, which had to be broken up before the lower layer of blood could be removed. The abdomen was flushed with sterilized water and a glass drain introduced. No fetus. The rupture, with ovum and placental tissue, was in the outer end of the tube. Excepting abscess from constricted suture, her recovery was uneventful.

Of the twelve cases included in this report, five recovered by rest, one left the hospital before full recovery, one took only snatches of rest, and five were operated on for cause; two for growth of tumor, one for recurrent hemorrhage, one for sepsis, and one for fetus beyond term. All recovered.

Following the plan of vigilant delay I have succeeded in restoring to perfect health, without operation, eighteen women out of thirty-five, not one of whom has been left an invalid. All consider themselves as well as they ever were and attend to their households as well as previous to their sickness. Of the remainder one refused operation, one left the hospital before recovery and fifteen were operated on, with four deaths. Three of the deaths were due to far advanced sepsis previous to operation, in cases not recognized by the attendants. Eliminating the three hopeless cases, there would remain a mortality of one in twelve. If the eighteen women who have recovered had been submitted to operation, according to my results, at least one would have died; one or more would have had a ventral hernia, and nearly all ventral scars.

In the papers above referred to and in discussions elsewhere published[2] I have given my reasons for the faith that is in me. It would unnecessarily prolong this résumé to repeat them. The technique of some of the operations,[3] and the choice of the abdominal or

[2] "Transactions of the Ohio State Medical Society," 1893 and 1896.

[3] "A Contribution to the Technique of Intraligamentary Operations,"

vaginal route[4] have also been considered on previous occasions. My experience with cases of circumscribed pelvic hemorrhage leads to the following conclusions:

1. That, unless they require immediate operation for cause, when first seen, they can be submitted to careful supervision in a hospital or home without danger.

2. That, when thus watched, more than one-half will get well without operation by keeping them at absolute rest for an average period of six to eight weeks.

3. That, when they can not be watched, or refuse to rest, early operation is to be recommended.

4. That operation is necessary only for special indications, of which the most important are sepsis with or without suppuration; recurrent hemorrhage; growth of tumor; non-absorption after a reasonable time, and compression of the pelvic viscera (rectum, or ureters).

5. Abdominal section is to be preferred to vaginal incision in most cases.

722 Woodland Avenue.

DISCUSSION.

Dr. LEWIS S. MCMURTRY of Louisville, Ky.—The subject presented by Dr. Rosenwasser is a very important one, and as I take it, it is a further contribution to the study of pelvic hemorrhage, as Dr. Rosenwasser has favored the profession with several papers on it. In studying the subject, it seems to me we can reach it best by analogy; just in proportion as our knowledge becomes accurate in regard to pathologic conditions so do they become simplified. For the sake of analogy let us look at the subject of appendicitis. It used to be known as perityphlitis, typhlitis, etc., and now it is appendicitis. Our knowledge of the subject has been greatly increased. The subjects of pelvic hematocele and intrapelvic hemorrhage, encysted, circumscribed and diffuse, these terms have mystified us and should be dispensed with just as the terms that were formerly used in regard to appendicitis. So far as I know, all cases of intrapelvic hemorrhage are ruptured tubal pregnancies. In all of my personal experience, it has been entirely a confirmation of the pathology that was a long time ago defined by Bernutz and Goupil, and as we study the pathologic condition more and more we find but one condition obtains in these cases. I wish to state that the pathology will be very greatly cleared up when we realize the fact that these cases are nothing but ruptured tubal pregnancies, and this lesion presents itself in the same great variety, using the same analogy, as appendicitis does. The operation for this condition is not always immediately fatal. The patient may recover without operation, but these cases are few, that is, proportionately few. In considering the treatment, it would seem best to operate on all of them. There is greater safety in an abdominal section skilfully performed than there is in waiting and taking chances and avoiding sepsis.

Dr. A. GOELET of New York—I wish to dissent from the statement made by Dr. McMurtry, that all of these cases are due to ruptured ectopic gestation. From my own experience, I can not believe that is the case. I have seen a number of cases of intrapelvic hemorrhage in which there was no possible chance of making a diagnosis of pregnancy. Again, a hemorrhage having occurred in the pelvis, the proper thing to do, if it is not absorbed immediately, is to remove the blood clot or clots. Objection to operation is invading the peritoneal cavity. We must remember, if the hemorrhage is beneath the peritoneum, the peritoneal cavity is not involved. If hemorrhage takes place in the peritoneal cavity it is shut off by the exudation and inflammatory action; therefore, we may say, after a certain length of time, it is extraperitoneal to all intents and purposes. Some two years ago I advocated treating these cases by vaginal section, and I rise today to reiterate statements I made at that time, that in cases of ectopic gestation if, after a sufficient length of time is allowed for the vessel to close, there be a recurrence of hemorrhage, the operation of incision into the mass through the vagina is simple and safe, and there need not be any fear of abdominal section.

Annals of Gynecology, March, 1891.

[4] "Comparative Merits of Abdominal Section and Vaginal Incision in Extraperitoneal Hematocele," Annals of Gynecology, September, 1889.

Dr. CHARLES P. NOBLE of Philadelphia—So far as my experience goes, I have never seen a case of intrapelvic hemorrhage that was not due to ectopic pregnancy. I think everyone agrees that if we have a rapid violent hemorrhage in these cases, the only thing to do is to operate. This point is not debatable. In the circumscribed cases, especially in my own practice, where the diagnosis was made early, I have not seen one that died after abdominal section and removal of the clots and affected tube. That has been my experience and I heartily favor operative interference. I have seen a number of late cases, after suppuration has taken place, and in those it is best to operate *per vaginam*. In operating *per vaginam* in a case seen early, I think it is risky, as there have been numerous cases reported where active hemorrhage took place, and so in the old suppurating cases I would prefer to operate from above.

Dr. RUFUS B. HALL of Cincinnati—The time to operate in extra-uterine pregnancy is when you have made a diagnosis. According to the Doctor's own statement of waiting for nature to cure the patient after organization of the blood clot, etc., he has five cases suffering from sepsis. These were operated on, four got well, and one died. This alone should prompt him to operate as soon as he has made a diagnosis in these cases. The method of operating is open to question; I grant each man the method he prefers. Personally, I prefer the abdominal route, and operate when I make a diagnosis.

Dr. L. H. DUNNING of Indianapolis—I heartily agree with the last speaker (Dr. Hall) that we should operate as soon as the diagnosis is made, and yet there will arise cases in which the specialist alone has the privilege of examining the patient weeks after the hemorrhage has occurred. It has been my privilege to see two such cases within the last two weeks. In these cases there was a circumscribed, immovable tumor, bulging into the vagina. The tumors were large, were incised through the vagina, and the blood clots and débris were removed. The patient made an excellent recovery. It is necessary to discriminate in these cases. We know that if we have hemorrhage early in the period of gestation, that frequently peritoneal inflammation will shut off the clot from the general peritoneal cavity, that the blood may remain there without change, and infection may take place if fermentation occurs, and then it would be almost impossible for us to remove the mass by an abdominal operation, while in such cases we can incise them from below and the patients will invariably recover. We should consider the time that pregnancy has elapsed until the time of rupture. At several months, pregnancy would have supervened before rupture occurs, and, of course, we have a condition not likely to be absorbed, and suppuration is more likely to occur. If it does occur in these cases, it is absolutely necessary to remove the tube, or we will have a protracted case and perhaps death in the end.

Dr. DUDLEY of New York—The subject under discussion is the treatment of circumscribed intrapelvic hemorrhage, but the discussion has drifted largely to the treatment of extra-uterine pregnancy. That does not include the entire scope of this paper, in my judgment, because there are other causes of circumscribed pelvic hemorrhage than extra-uterine pregnancy. I have seen it in many cases. Granting all that has been said concerning extra-uterine pregnancy, I will mention other conditions. One of the most prolific causes of circumscribed pelvic hemorrhage is interference by the midwife in producing abortion. I have found more than half a dozen cases in my practice, and I would like to say a few words relative to a case that came to my clinic last week. A patient came to me saying that a midwife had operated on her, and she came into the hospital septic. I made a diagnosis of fibroid tumor which filled the pelvis, and in opening the abdomen I discovered what was apparently a triple uterus, the larger portion being central, a part of the tube extending from two lateral portions of the uterus. A puncture was made through the top of the central one, and from which was removed about a pint of clotted blood. The patient died. The puncture had been made near the circular outlet. The hemorrhage was so great and sepsis so profound that the patient lost her life. I was able to get a postmortem and to prove the truth of my statements.

Another cause of circumscribed intrapelvic hemorrhage is ulcerative processes which attend diseases of the tubes. The treatment of circumscribed pelvic hemorrhage depends entirely upon the diagnosis, and in my judgment the proper method of treatment in the majority of such cases is by the abdominal route.

I am willing to confess my mistakes. On last Friday I did a laparotomy for diseased appendages, and as is always my custom I curetted the uterus, and knowing the condition of the patient I did so very carefully. I then opened the abdomen, found one ovary filled with blood, the opposite side of the tube filled with water and a little bunch of hair close to the horn

of the uterus beneath the tube. In pulling the gauze up through the uterus and incision, I did not recognize that I had punctured the uterus. There was the gauze and I drew it out through the abdominal cavity, having punctured the uterus in packing it close to the horn.

Dr. JOHN M. DUFF of Pittsburg.—In the vast majority of cases in which we have evidence of sudden hemorrhage I think it is the result of extra-uterine pregnancy. But I will not take time to discuss this phase of the subject. I have heard on one or two occasions the statement made that there was very little danger in puncturing the uterus. I have a specimen in my possession at the present time concerning the case of a woman who had whittled a skewer that had been used for beef and had passed it up through her uterus and broke it off in the uterus, it having passed through the walls of the organ, and she died from the hemorrhage resulting therefrom. This case shows that we may have immediate fatality from puncture of the uterus.

Dr. A. H. CORDIER of Kansas City, Mo.—I am of the opinion that the paper of Dr. Rosenwasser is going to be the cause of doing some mischief in this country. He is a recognized authority on this subject, and a great many practitioners in treating these cases would do so very much along the line they would treat cases of appendicitis. I fully agree with Dr. McMurtry in regard to the hemorrhage being due to extra-uterine pregnancy. I have never seen a case but what the hemorrhage was due to it. If a patient is shot through the uterus or receives a stab wound in this organ, there is no reason why it should not cause hemorrhage in this locality as in any other part of the body. Cases present themselves with a history of hemorrhage in the pelvis without any foreign substance having been passed into the uterus, or without a definite history of traumatism. I am unable to understand how (and I hope the Doctor will tell us in closing the discussion) he makes the diagnosis and how he knows the hemorrhage is going to remain circumscribed. A most intelligent practitioner two weeks ago, in my city, made a correct diagnosis of extra-uterine pregnancy with primary rupture. One week later the woman presented herself with secondary rupture. There was a tear in the tube either from a blow from the child or extravasation of blood from this locality. The doctor gave the patient a hypodermic injection of morphin to relieve the pain, and in so doing he made a fatal mistake in that he masked all the symptoms. The patient turned over in bed and said that she felt very easy. The doctor presumably thought she was going to sleep, but at the end of an hour's time she was dead, having died from a concealed hemorrhage without a single drop making its appearance through the vagina. Dr. Dunning has called attention to the duration of pregnancy as an operative indication. It is absolutely impossible to tell the duration of pregnancy. Most of these cases rupture before the twelfth week of pregnancy and we can not get a straight history as to when pregnancy began. Whenever the diagnosis is made, then is the time to operate. If the cases are operated on early and thoroughly, the mortality will be extremely low. I prefer the abdominal route in operating on these cases; you remove the suppurating or diseased tube.

Dr. HOWARD A. KELLY of Baltimore—I heartily agree with Dr. Rosenwasser in some of his conclusions and we are indebted to him for his paper. It will to some extent modify my own practice. Dr. Rosenwasser has been following out this subject in a scientific manner by taking a radical departure from previous methods, hinting at the deductions drawn by Tait many years ago, who showed that the majority of cases of extra-uterine pregnancy ruptured early and disappeared without anything being heard of them other than a severe attack of pain. Where the hemorrhage is circumscribed, in case it is held down by adhesions or is in the broad ligament, it is perfectly safe under such circumstances to watch the patient to see if the blood will not be absorbed. In case the patient should have repeated hemorrhage I would prefer to operate.

Dr. ROSENWASSER (closing the discussion)—I have been in the habit of making careful notes of cases, taking a few of them into the hospital, and recording the results from time to time. I shall continue these reports until we can draw further conclusions. The title of my paper says exactly what I mean—the treatment of circumscribed pelvic hemorrhage. I have nothing to do with free hemorrhage which comes from injury or anything else. I simply wish to make the point that we should distinguish between the two kinds of pelvic hemorrhage. In reading a paper before an association like this a great many points are misunderstood, and I hope the gentleman who asked the question how to differentiate between circumscribed and other forms of hemorrhage will read the paper carefully and I think in it he will find the information he asked for. One of the speakers is afraid that my paper will cause the pendulum to swing too far in a certain direction. If it will set it back in the right direction I shall be well pleased. The pendulum has swung too far one way, and we want to get it back. If the truth is going to set us back, I want it to do so. There was a misstatement in the discussion with regard to septic cases. I reported four cases of death, these cases came to me at a time when they were hopelessly septic and I made a forlorn operation. They all died. I lost one such case seen in the morning and operated the same day.

THE ANTISEPTIC VERSUS THE ANTITOXIN TREATMENT OF DIPHTHERIA.

Presented to the Section on Diseases of Children at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY O. W. BRAYMER, M.D.

CAMDEN, N. J.

I am much interested in the subject of diphtheria and its treatment, and from what I have been able to observe, it would seem that the point at issue at the present time is this, viz., is or is not antitoxin the best treatment yet offered for the cure of diphtheria?

I have had very limited experience with the remedy, but as yet can not feel that it is worthy of the advertising it has received at the hands of the profession. This conclusion has not entirely been arrived at from the few cases in which I have used the remedy, but from all the information I have been able to obtain from reading the arguments *pro* and *contra*, in medical literature. Let us consider a few published facts.

Producers of antitoxin are urging the profession to use the serum in the very early stages of the disease and in suspected cases, even before any bacteriologic examination can be made (on which they are great sticklers) and even before one could decide from clinical diagnosis.

They would have this admittedly dangerous remedy injected into those suffering from the slightest sore throat, even into the well persons of the household. These actions naturally swell the number of cases reported and lower the percentage of deaths. Yet statistics show that, in reality, as many people are now dying from diphtheria and its *sequelæ*, in proportion to the population, as there were before the serum treatment was introduced. Then, granting that sometimes you have almost a zero death rate when using the antitoxin, you must give those who use other treatments like concessions, because all who have met with many cases of diphtheria know how different in fatality it is. You also know what a difference in vital force there is in individuals. These points have much to do with the results from any remedy in this disease.

I believe all will agree that diphtheria is primarily a local disease; then we ask the question, why not treat it as you would any other like condition, why not treat it successfully by antiseptics? If antitoxin does any good at all, it is only to counteract the effects of the absorbed toxin of the disease. Why not as well destroy the bacillus while it is yet doing the local work before great absorption has taken place? Surely this can be done in those cases that are amenable to treatment, when seen early. And those that have been of several days standing without treatment are admittedly not so much benefited by antitoxin, perhaps no more than by any other rational treatment. Then again the use of antitoxin causes great pain and fright, especially in small children, and this alone might be a cause of death.

I feel that a local antiseptic treatment, properly applied by skilled hands, and an internal supporting treatment pushed to the limit indicated by the individual case is as good a treatment as we have yet found. I feel that the reason the results from this line of treatment have not been more generally successful, has not been because of weakness of remedies, but in unskilfulness in their application, and inadequate care to the general surroundings of the patient.

My experience with diphtherial cases has been divided into three periods and methods of treatment.

During the early years of my work the old chlorate of potash and iron, and the calomel treatment, were adopted. Thirty-six cases were treated during this time, and seven deaths were the result. During the second period thirty-two cases were treated very carefully by local antiseptic applications, a 1 per cent. solution of creolin was the principal remedy used, either by spray, gargle or applicator, as indications warranted, together with the internal use of strychnia, stimulants and foods. In this list there were no deaths. The third group contains only six cases, all treated with antitoxin, and the result was two deaths. These seventy-four cases were not selected ones, but all that came under my care in a series of years.

They were all children except four, who were adults aged respectively 19, 20, 22 and 32 years; the latter being the mother of two children, suffering from the disease in the same house.

The youngest patient among my list was eleven months, all were white excepting one, a colored girl aged 11 years. No record of bacteriologic examination has been recorded in this paper for various reasons, viz.:

1. In the beginning it was not convenient to have such examinations made, and it seems best to report all cases on a clinical diagnosis, giving all the same standing.

2. Since in some of the very marked cases of diphtheria no bacilli are found in the throats of those affected and since many bacilli are found in some persons not sick with the disease, it seems to me that we have just reason to doubt the utility of bacteriologic examination for practical medical work. I do not feel that the well qualified physician of ordinary attainments is any the less able to make a correct diagnosis in diphtheria than he is in measles, enteric fever or like diseases, and it seems that it is only since antitoxin has come to hand, that such attainments have been denied the general practitioner. This paper is not presented with the intention of giving tabulated statistics; it is an expression of my own private opinion, based upon the knowledge gained from careful practical experience and study, and as yet I can not grant to antitoxin as offered today the powers that some claim for it. I feel that it is yet *sub judice*.

I look at it in the same light as I do the proprietary medicines and foods so much advertised in our day; while it undoubtedly has some virtues, yet it is no better than other judicious treatment, and is being greatly pushed to swell the coffers of those firms who are manufacturing the remedy. I believe that what we are the most in need of at present is more truthful statements from the profession at large, who are using different remedies. That man who claims to cure all of his cases of diphtheria by any one line of treatment, is either one of two things, not partial to the truth or else a very poor diagnostician.

The friends of antitoxin claim especial benefits from its use in laryngeal cases, yet we all know that excellent results have been obtained from other remedies, and no doubt still better would follow if we could always have the best nursing in these cases so that remedies ordered would be applied according to our instructions and as the individual case indicated.

THE SERUM THERAPY OF DIPHTHERIA, THE "ANTITOXIN QUESTION."

Presented to the Section on Diseases of Children at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY EDWIN KLEBS, M.D.

CHICAGO, ILL.

It is a matter of great importance not to neglect the question of the origin and nature of antitoxins. While clinical facts and statistics seem to give sufficient reason for approval or disapproval of the therapeutic application of antitoxins, it must be borne in mind that laboratory research alone can give exact data, and by it methods can be perfected. Science and humanity will derive more benefit by not only accepting the rough facts, which the statistics give us of the results derived from clinical observations, but by exact investigation of the nature and origin of those bodies, which from their probable action, we call "antitoxins."

The first investigations toward discovering the relation of toxins and antitoxins were made by Smirnow (*Berl. klin. Wochenschrift*, 1895, 1896), d'Arsonval and Charrin (*Comptes rendus de la Société de Biologie*, 1896), Bonome and Violo (*Centralblatt für Bacteriologie*, B. 19, 1896), who thought to have transformed toxins into antitoxins by means of different forms of the electric current. Other observers had not the same results in the different methods of application; sinusoidal currents of high voltage seemed to be less detrimental to the easily destructible albumoses which probably form the toxins and antitoxins.

In what way the electric current may cause such transformation has not been clearly demonstrated, but one may accept the oxidation theory, expressed by one observer, whose work will be referred to later.

Nearer to the solution of this transmutation question comes Dr. Dzierzgowsky (*Archiv f. exp. Path.*, B. 38, p. 186, 1897), who tried to ascertain the quantity of diphtheria antitoxin in the different organs of immunized horses. He found that the highest quantity, seventy Behring's units, was contained in the blood serum and blood plasma and in a Graafian follicle; then follows the kidney with forty-five, the ovaries, the mammary and renal glands, with thirty; the heart and lymphatic glands contained twenty; liver, spleen and spinal chord ten; brain, marrow of bones, *white and red blood corpuscles only one.*

This shows clearly, as correctly deducted by the author, that the antitoxin is not found in any organs or cells but that it is generally a *product of transmutation of the injected culture fluid.* But it seems to be very questionable, if, as he concludes, the toxins are changed into antitoxin.

Having demonstrated experimentally that the culture fluids of tubercle, diphtheria and typhoid bacilli (for the last not yet published) contain two different albumoses, very well separable chemically, the one with healing or bactericide properties (sozalbumoses), the other with poisonous properties (toxalbumoses),

it seems that only the last are destroyed in the body of the animal, into which the whole culture-fluid was injected.

It seems not difficult to explain why it is so, the toxic substances provoking the febrile reactions, that is the higher oxidation, which also destroys the toxins when electric currents are used. The immunization is probably obtained by the active poison-destroying property of the leucocytes, trained in the struggle against the toxins.

Behring concluded from the observed lack of bactericide properties in his serum, that the curative principle of the serum must lie in new products formed in the immunized body. But Pfeiffer has shown that these properties can be demonstrated in the sera of animals immunized against cholera Asiatica and typhoid fever. It is improbable that it should be different in diphtheria. If diphtheria contained only antitoxic substances, why should the efficacy of it be less in the latter stages of the disease, in which toxic effects are most prominent and so in all cases, even of true uncomplicated diphtheria. That the best results with serum are obtained in cases where, in the first days after infection, the treatment was begun, is generally accepted. And furthermore the loosening of the membranes after the injections of serum can not be well explained as produced by antitoxic influences.

In conclusion I wish to say that in the serum there must be contained not only antitoxic but also bactericide principles. It is therefore most probable that not only antitoxic but also bactericide principles work together to produce the curative effect of the serum. Furthermore these bodies are not new products formed in the immunized animal, but transformed from the injected culture fluid. This leads to the possibility that we are able to transform the culture as such directly, without the passage through the body of an animal, and my experiments in this line seem to emphasize this theory.

602 Stewart Building.

SUCCESSFUL TREATMENT OF DIPHTHERIA AS COMPARED WITH ANTITOXIN.

Presented to the Section on Diseases of Children at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY JOHN H. COUGHLIN, M.D.

NEW YORK, N. Y.

This is certainly the age of medical and surgical progress, and there is a constant desire for something new. The wonderful advances which have been made in medicine and surgery during the past decade would seem to warrant us in looking for newer remedies in every department of medicine, and, indeed, the number of these which of late years have been pressed upon us by writers in medical journals and manufacturers, are so great that much confusion of thought and purpose is often induced thereby. It is well, therefore, to stop, consider and try to estimate the value or worthlessness of the new, and to see what of it should be added to our stock of old, and thus recognize where true advance has been made. It would be really amusing, were it not so sad, to read and record carefully all that is written in journals and publications relating to the treatment of diphtheria, and then in time carefully note the true value of this and that remedy as developed by the experience of others than the one presenting it. We are not so much in need of new remedies, but a better understanding and adaptation of the old ones.

Isolate your patient in a separate room, preferably in the upper part of the house, having the sick-room divested of all unnecessary furniture; remove the carpets, curtains and upholstered fixings. There should be plenty of fresh air and sunlight without draughts. Draughts are dangerous, as they often cause the diphtherial process to extend into the larynx. The clothes and bed linen should be kept scrupulously clean and pure, being well exposed to the sun and air.

Great precaution should be taken that cups, saucers, spoons and other utensils should be kept apart for the absolute use of the sick. The cups, saucers and the clothing necessary to be returned to other parts of the house, should be boiled and washed in the following solution before being taken from the patient's room: Zinci sulph. 3 iv, sodii chlorid. 3ij, boiling water 1 gallon.

Nurses or attendants upon the sick should be separated as much as possible from the rest of the household. They should wear a loose gown or wrapper, and upon leaving the room should remove and hang it up in the chamber of the patient.

Mothers nursing a child and often having the care of the sick, should use extra precautions in paring her nails very close, scrubbing her fingers, nails and hands with soap and water and soaking them from three to five minutes in a solution of 1 to 5000 bichlorid of mercury before nursing her baby, as she is very prone to infect her child in using her fingers in placing the nipple in the nursing child's mouth.

A towel, wrung out after being soaked in 1 to 1000 bichlorid of mercury solution, should be pinned by its two upper borders over her bosom by a safety pin under the gown or wrapper which is worn in the room of the patient, and should be removed before each nursing or handling of the baby.

Importance of diet and feeding.—Trousseau says: "Alimentation occupies the first place in the general treatment." I have observed that the severer the attack, the more imperative is the necessity for sustaining the patient with nourishing food. Diphtheria debilitates, and as recovery often depends on the strength and staying power of the patient, it is obvious that the greatest care must be taken from the commencement of the illness to keep up nutriment. It is much easier to prevent the disturbances of the digestion by proper feeding than to allay them when they have been excited. Administration of nourishment should be carried on on the principle of the little and often plan.

Patients are sometimes allowed to sleep too long without nourishment, it is often the sleep of toxemia, the commencement of that long sleep which knows no awakening. They should be aroused and fed. Failure of the appetite, that is, disgust for every kind of food, is justly regarded as a very unfavorable prognostic sign. We must try to overcome the loathing of food by every possible means; we should first coax, bribe with toys and make promises to our little sufferer; failing in these, I would not hesitate sometimes to threaten the child with punishment. While the child retains its appetite for food there is good hope for recovery. We are apt too rely too much on drugs in this disease and overlook a very important part of our treatment, the supporting of our patient's strength with proper nourishment. It is not wise to defer too much to the whims and fancies of the child.

The physician should not permit himself to give vague and indefinite directions about diet; he should dictate a diet list with as much care and precision as he prescribes the medicine and should at each visit satisfy himself that his directions are being carried out. Many children treated after the most scientific and improved methods, have been neglected in this essential and allowed to perish, when they could have been otherwise saved.

The power of digestion is greatly diminished in all febrile diseases, due to the locking up of the gastric juices; hence, our anorexia. Puddings, jellies and ice-cream are liable to disturb the digestion and had better not be used. Avoid solids, as a rule. Use beef tea, meat juice, beef extract, chicken broth, oatmeal made with plenty of milk and strained, white of an egg beaten up in water or diluted milk; but our main reliance must be placed on pure fresh cow's milk, as it is the most natural food for the child. In infants and young children it can stand dilution with lime-water. All drugs which interfere with proper digestion and assimilation of food, are harmful and should not be given.

Forced feeding is often necessary, owing to dysphagia due to sepsis, stupor, severe pharyngitis, paralysis of the soft palate; or a child sometimes becomes so obstinate as to decline all food and there is great danger from inanition. In infants up to 18 months old we should employ gavage, in older children we should use nutrient enemas.

Stimulation.—The common practice of some is to prescribe an enormous quantity of alcohol for infants suffering from diphtheria, justifying their course by pointing to the fact that these little sufferers tolerate and some survive its use in such large quantities.

Permit me here to make quotations from the two leading text-books of the English-speaking nations:

The American Text-book of the Diseases of Children (p. 283) says: "Alcohol should be given freely from the beginning, and there is more danger from giving too little than too much."

Ashby and Wright's (of England) Text-book of the Diseases of Children (p. 274) says: "Alcohol in the form of brandy and port wine must be given with a free hand."

The vast majority of text-books and modern writers on this subject speak of alcohol as though it was harmless and a specific in the treatment of diphtheria; such teaching and practice certainly does much harm. The early and continual administration of large doses of alcohol must certainly result in the same disastrous effects as observed when liquor is taken in excess.

The active intoxicating ingredient of the alcoholic drinks used by mankind is ethyl alcohol. We will take it for granted in our observations that these drinks are pure and free from fusel oil and other base, vile and more poisonous ingredients of liquors, leaving out of consideration the secondary effects of adulterated alcoholic drinks.

From a pathologic standpoint, even, the chemically pure ethyl alcohol must be regarded as a poison to the organism of the child. Literature records the death of a 3-year-old child after a single dose of two and one-half ounces of ethyl alcohol.

Various alcoholic drinks in use contain it from 3.5 to 55 per cent. by weight, and that which is usually used in sickness is whisky or brandy, and they contain on an average 50 per cent. of ethyl alcohol. Alcohol is conveyed to the blood through the veins of the intestines and to a less degree through the lymphatics.

The excretions of alcohol from the organism, according to Binz and his disciples, occurs through the intermediate formation of aldehyde and acetic acid. The final products are carbonic acid and water. If the blood is overcharged with alcohol, a portion is eliminated by the skin, the expired air and especially by the kidneys. It has been proven by the French writers, Duroy, Perrien and Lallemand, that unchanged alcohol has been found in the urine.

Physiologic action of alcohol.—Alcohol applied to the skin is an irritant, and if persisted in will cause ulceration of the skin.

The brain gives way the most quickly after the reception of alcohol, as instanced in drunkenness; it is capable of producing the stupor of anesthesia, and this anesthesia may be deepened unto death.

Nerve destruction is the well-recognized action of alcohol brought into the system, even in repeated small doses, as Kerr and Strümpell have proven.

Heart and arteries.—The first influence of alcohol is to cause the action of the heart to be accelerated and the pulse to become increased in frequency, but the tension of the arterial walls and the blood pressure are, on the contrary lowered. The distention and fulness of the blood vessels are produced by paralysis of the vasomotor influences. Wood of Philadelphia says: "Alcohol whipped the heart into furious activity at first, and then produced paralysis, so that death took place in the relaxation."

Digestive organs are increased in their action like other functions of the body, but digestion itself is not promoted by alcohol; on the contrary, it causes a catarrhal condition of the mucous membrane by irritating its surface, resulting in an insufficient supply of digestive fluid and an abnormal secretion of mucus, thus seriously interfering in the assimilation of food, as has been proven by the investigations of Little of London, Limanowsky of Munich and others. Demme of Berne says: "According to the majority of investigators absorption and assimilation are diminished in rate even by small doses of alcohol."

In diphtheria there is usually albumin in the urine, showing that there is a disturbance in the nutrition of the epithelium of the capillaries of the tufts or of the cells surrounding the glomeruli.

The presence of albumin in the urine under all circumstances must be regarded as kidney changes. The severer the attack of diphtheria the more pronounced the albuminuria usually is. Modern writers urge that in just such cases large quantities of alcohol are indicated. Now, how in the face of this unquestionable condition of the kidneys can such large doses of alcohol be given, when it is known to irritate the delicate epithelium of the kidneys and to aid and cause nephritis and other renal complications?

Uremia is one of the most important of local maladies pertaining to diphtheria and is produced by diphtheritic poison, it is also brought on by large doses of alcohol; therefore, we can ask those who use large doses of alcohol in diphtheria, when their cases end in uremia, how much has alcohol to do with this termination?

In septic or toxic conditions of diphtheria an enormous quantity of alcohol is used; we can here ask when the child has passed over to the majority if it was the toxemia of diphtheria or alcohol? The toxic symptoms of diphtheria and alcohol are closely allied.

LIBRARY OF COLLEGE OF MEDICAL EVANGELISTS LOMA LINDA, CAL.

Acute alcoholic insanity and melancholia are produced by even small doses of alcohol, and those disorders come on suddenly without visible prodromes.

Acute alcholic multiple neuritis, acute alcoholic gastritis and delirium tremens are the result of large doses of alcohol.

The "Twentieth Century Practice of Medicine" (Vol. iii, p. 11) mentions an acute pneumonia induced by alcohol. Is this the pneumonia that so often accompanies so many fatal cases of diphtheria and is known as a septic or broncho-pneumonia?

Certainly these are open questions waiting for investigation. Diphtheritic paralysis caused by the toxin of the Klebs-Loeffler bacilli is not prevented by alcohol, no matter how large a quantity is given, but that we may assist a myo-carditic heart muscle to do its work is believed by many. I question it, considering that Strümpell claims to have seen degeneration of the myo-cardium from habitual moderate doses of alcohol. Is it not possible that large doses aid the diphtheritic virus in increasing the degeneration here, where we expect to aid instead of hinder?

There is a corresponding depressing reaction following over-stimulation from large doses of alcohol, in exact proportion to the amount of alcohol used, and in every instance in the healthy human body, and also during diphtheria, leaving the centers guarding the heart certainly not in an improved condition. It is in the stage of depression that the heart is apt to fail and death ensue from heart failure; here, we bring about a serious or fatal depression from over-stimulation of the heart, from our large doses of alcohol, when we are endeavoring to assist and prevent heart failure; large doses are beyond doubt cardiac depressants.

I have seen in the last year a case of acute mania, from large doses of brandy, in a child, and I have also seen a case of acute alcoholic multiple neuritis, and both of these children were suffering from diphtheria and were being treated with large doses of alcohol.

I maintain that such a powerful toxic capable of producing those serious complications, if used at all, should be used with great caution, as it is very difficult, if not impossible, to determine the amount of harm it is doing when its toxic effects are so closely allied to the disease as in diphtheria.

Alcohol, if used, should always be ordered in drop doses to children, as it impresses the attendant having charge of the child that it is not harmless in its use in diphtheria, and prevents the errors likely to be made with other measurements.

I believe the amount of alcohol used in diphtheria, by many physicians, can be safely reduced, and the indications for its use materially lessened if not entirely stopped, if thorough, prompt, and efficient local measures are practiced with proper feeding and hygienic requirements.

The number of successful cases which I present for your consideration have not had one drop of alcohol, except one where I gave it late in the disease and had to stop its use on account of the harm it did, showing that cases of diphtheria get along just as well without alcohol. To suppose that any present theory of alcohol is settled because it is accepted by the general medical profession is not the spirit of the age.

Cardiac stimulation can be had from such accepted and useful stimulants as strychnia, digitalis, caffein, camphor; hot milk, cocoa, coffee, and from judicious feeding.

Local treatment.—The universally accepted theory is that diphtheria is a local affection, and gives rise only secondarily to constitutional symptoms, by the absorption of the toxalbumins generated by the Klebs-Löffler bacillus. It has been proven that the membrane deprived of its germs produces the diphtheria by the action of its ptomain, a ptomain so poisonous that one-three-hundreth of a grain is fatal to a full grown guinea-pig. If we can, therefore, detect the disease clinically at the point where the infection is just taking place; that is to say, at its strictly primary seat, where the thin hazy film of fibrous exudate is just beginning to form, and slight constitutional symptoms exist, much can be done to stay its progress; we may expect thereby to check the local progress of much of its infective potency and limit its capacity for extension and constitutional effects. Local treatment, to be of service, should begin at the onset of the disease; we can have but little hope of influencing the disease by topical applications in the last stage, but something can be accomplished even then by thoroughly cleansing the parts of fetid and decomposing matter.

In the success of local treatment we must remember that many microbes are in the secretions and also on the epithelium, while others are imbedded in the fibrinous membrane, and the surrounding parts are covered with a myriad of bacilli, ptomains, septic and necrotic material. Systemic poisoning occurs from absorption through the lymphatics and blood vessels which are in immediate relation with the under-surface of the pseudo-membrane. The best and most satisfactory result in diphtheria are obtained by sprays, garling, irrigation, and inhalation in the form of medicinal vapors. To keep diphtheritic membrane at bay the applications must be thoroughly and frequently applied at regular intervals until the chance of fresh formation of membrane altogether passes.

Patients are injured by irritating lotions or instrumental treatment designed to remove the pseudo-membrane which immediately reappears in greater extent and thickness than at first, on accont of the increase in the inflammation in consequence of the severe measures employed.

Pharyngeal diphtheria.—The tonsils, uvula and the pillars of the fauces are the favorite site for the false membrane in diphtheria. In the treatment arrest the spread of the false membrane from extending into the larynx or nares, promote liquefaction, or removal of the false membrane, and prevent sepsis. These indications are best met with local measures and should be combated with vigor, promptness and frequency, by thoroughly cleansing these parts *every two hours, night* and *day* with a fifteen volume solution of the peroxid of hydrogen used from a hand spray for about two minutes, it being the most useful drug for the removal of broken down membrane, pus and necrotic tissue.

It should be used from 33 $\frac{1}{3}$ to a 75 per cent. solution, on an average of a 50 per cent. solution diluted with water; this often irritates and causes pain, but can, however, be in a measure overcome by following with a salt solution, thereby neutralizing the excess of acid.

A solution of the chlorid of sodium, of the strength of a teaspoonful to a pint, can be given to the child to gargle if old or strong enough to gargle; if not we should use it every four hours, day and night, from a fountain or Davison syringe, using at least from one

to two pints; the mechanical removal of the septic material is a valuable aid.

Nasal diphtheria.—From its concealed position it is easy to perceive why the disease is so frequently overlooked, and a simple nasal catarrh is suspected to be present when there is no inflammation or membrane in the fauces to aid the diagnosis. Invasion of the nasal tract may be suspected when nasal respiration is obstructed, giving rise to a bubbling or sniffling sound especially during sleep; and when a thin ichorous, muco-purulent discharge appears, with small excoriations and ulcerations at the entrance to the nares and upon the upper lip.

It always involves great danger, since it is very liable to give rise to systemic infection, from the large number of lymphatics lodged in the connective tissue of the nares. It may be primary or secondary; when secondary the inflammation extends up the posterior nares from the pharynx.

It is here where the greatest care and attention must be given to local treatment; it must be thoroughly and frequently repeated, gentle douching from a fountain or glass syringe with a rubber tip, with a warm bland 1 per cent. solution of the chlorid of sodium, alternating with a warm, saturated boric acid solution to be used *every two hours, night and day,* while at least one pint to a quart of the solution should be used at each application.

Laryngeal diphtheria may be primary or secondary. The onset is recognized by a harsh, dry, shrill or hoarse muffled cough; the voice is weak, husky and sometimes inaudible; the breathing is embarrassed, intermittingly at first, constantly afterward; associated with the metallic or brassy cough is a spasmodic closure of the glottis and a temporary increase in the dyspnea. In this form of diphtheria our main reliance must be placed on steam inhalation; the vapor should be medicated with some disinfectant; the following will be found highly serviceable: Oleum eucalyptus, 2 drams; spirits of turpentine, 1 ounce to each pint of water. Carbolic acid is still used, but the risk of absorption and the damage it may do to the already affected kidney should make us careful about using it for any length of time.

With regard to the value of emetics in diphtheria, there has been considerable difference of opinion; one should hesitate before administering a powerful depressant in a disease the danger of which *is* depression. Calomel fumigations, vapo-cresolin, also the burning of tar in the room, have their advocates. If obstruction to the breathing increases, as evidenced by the restlessness of the child and aggravation of the above symptoms with recession of the intercostal and the supra- and infraclavicular spaces, it becomes our duty to interfere, and to relieve the obstruction mechanically, if possible; first by intubation, later by tracheotomy if necessary. Do not wait for intermitting pulse nor for the child to become cyanotic before intubating, nor allow our patient to drift along into an almost moribund condition before you operate, if you expect any good results from the operation.

Constitutional treatment.—Commencing our treatment we should invariably move the child's bowels with calomel in the form of one-tenth grain tablets, one every hour or half-hour; if diarrhea is present during the illness, it is a conservative process on the part of the intestine to rid itself of noxious and toxic matter and nature should be aided by castor oil in a 1 or 2 dram dose, followed later by salol, beta-naphthol, bismuth, or pulv. Doverii; this not controlling it, irrigation of the rectum will prove most efficient.

It is of the utmost importance to remember that diphtheria is a disease that leads to anemia and great exhaustion. We are all familiar with the pallor, loss of appetite and strength before the close of the first week, in severe cases, which are always symptoms indicating rapid and progressive deterioration of the blood.

Iron is at once suggested as the proper medicinal agent to check the blood changes from its well known effect in increasing the number of red blood corpuscles and the amount of the coloring matter in these corpuscles; by its effect on the red corpuscles, which are the carriers of oxygen, it increases the functional activity of the organs and improves general nutrition.

Iron in the form of the tr. ferri chloridi is indicated. The tincture of iron or the muriatic tincture of iron is prepared by adding alcohol to the officinal liquor ferri chloridi and contains the sesqui-chlorid of iron, muriatic acid and alcohol; from the reaction of the alcohol and the acid, chloric ether is produced; hence, this preparation of iron has a variety of actions that meets the indications in the treatment of diphtheria, making it the theoretic and clinical remedy.

The chloric ether contained in this preparation of iron is a diuretic and aids us in combating the albuminuria. The chlorin which it contains is a local and constitutional disinfectant. The iron is also an astringent, antifermentative, disinfectant, and a vascular stimulant. To be of service it should be used in large doses, from 10 minims to 1 dram; it is best given in glycerin and water each hour or two, night and day, according to the severity of the diphtheria and the age of the child.

The title to my paper may be somewhat misleading; I simply intended that my paper should be compared to those papers presenting their arguments in favor of antitoxin in the treatment of diphtheria before this meeting. I had not intended to touch on the subject of antitoxin, but one can not discuss the treatment of diphtheria without giving their opinion or experience with its use. With serum-therapy I have had but very little experience. I used it for the first and only time on a clergyman, and immediately after its use he commenced to vomit and continued vomiting for some twelve hours. After using many remedies to check the vomiting without success, I finally stopped all medication and gave the stomach absolute rest, when he commenced to vomit mucus streaked with blood; at this stage I used morphia and atropia hypodermically, which stopped the vomiting at once. The vomiting was probably simply a coincidence and had nothing whatever to do with the injection of the antitoxin; but the vomiting, starting so promptly after its use, left me in doubt as to its value.

We are treated to statistics which show without doubt, to those who make them, that antitoxin reduces the death rate in diphtheria. These figures would certainly be convincing were it not that these observers so universally rely upon the Klebs-Löffler bacilli as the sole test for the presence of the disease. Dr. Gross has lately made the statement that in the Children's Hospital at Boston the diphtheria bacillus was found in 8 per cent. of the throats examined, when there was not the slightest clinical symptom of the disease. In one of these cases the bacilli were found for 103 days; in another they were found in the discharge from an otitis media.

A prominent physician, now serving the City of New York as a coroner's physician, informed me that he made a culture from his throat and sent it to the Board of Health while he was up and around and attending to his official duties in the best of health, without a single local or constitutional symptom of the disease, and the report was returned that it was a true case of diphtheria. Yet the tendency is to allow the Board of Health to make the diagnosis of diphtheria, making the opinion of the physician and the clinical symptoms unconsidered trifles.

Prof. Joseph E. Winters, visiting physician to the Willard Parker Hospital for Contagious Diseases, in New York City, and having a number of clinics for children, a large consulting and private practice to draw his conclusions from, fails to find any value in antitoxin as a remedy in diphtheria, after observing the experiments of himself and others. Dr. John Dorning, consulting physician to St. Joseph's Hospital, visiting physician to St. Frances' Hospital, also having a large children's clinic and consulting and private practice, having in seven consecutive cases treated with antitoxin, some as early as thirty-six hours after the commencement of the illness, every one of these seven children died; each one of those were treated in private practice.

Dr. Alexander Dallas of Bayonne, N. J., a shrewd, careful practitioner of large experience, used antitoxin on eleven cases in private practice and ten died.

Dr Francis Huber, chief of the Vanderbilt Clinic, the largest children's clinic in New York City, and a gentleman with large practice and experience, was forced to discontinue the use of antitoxin, failing to find the brilliant results claimed from its use. My single experience with the use of antitoxin, the observations of my personal friends and of the above gentlemen, and others, has not encouraged me in using antitoxin or advocating its use.

Convalescence.—Diphtheritic paralysis is an affection of the convalescent, usually making its appearance after two or three weeks after the commencement of the illness. We should guard against fatigue, excitement, exertion or moisture, for even in mild cases there is great danger of paralysis and sudden death from involvement of the heart or diaphragm, a month after the disappearance of the membrane and when all signs and symptoms of the disease have disappeared. Tonics with nourishing food, with sunshine and air, is indicated during convalescence.

Cases.—In each of these twelve successive successful cases, the clinical diagnosis was confirmed by bacterial cultures made by the Board of Health of the City of New York; they are from my private practice, and I present them for your consideration as a criterion of what we might expect from such management of diphtheria.

Many gentlemen within my hearing are using practically the same line of treatment, probably not as vigorously carried on, and have no doubt had their confidence in its usefulness somewhat disturbed on account of such glowing statistical reports from the use of *antitoxin* and *alcohol*.

The brilliant results claimed from such treatment, unfortunately, have not proven so effective in the hands of others who are just as competent to determine their value in the treatment of diphtheria.

Case 1.—William McA., age 13 years. Pharyngeal. Patches partly covered both tonsils. No antitoxin or alcohol used. Recovery.

Case 2.—Mary McA., age 7 years. Pharyngeal. Patches on both tonsils and small one on uvula. No antitoxin or alcohol used. Recovery.

Case 3.—Jennie B., age 10 years. Pharyngeal. Several discrete large patches on tonsils. No antitoxin or alcohol used. Recovery.

Case 4.—Maggie B., age 5 years. Pharyngeal. Several discrete patches on tonsils and soft palate. No antitoxin or alcohol used. Recovery.

Case 5.—William B., age 2½ years. Pharyngeal. Thin patches on tonsils. I was the fifth physician called in to see child suffering from abuse of alcohol with acute mania and acute alcoholic multiple neuritis. Child received ℥ss of brandy every three hours with approval of physicians; stopped alcohol, used no antitoxin; child commenced to improve at once. Recovery.

Case 6.—Mannie C., age 4 years. Nasal and pharyngeal. Ulceration about anterior nares; snuffling and thin ichorous discharge from nostrils. Large patches running upon tonsils along uvula and soft palate. No antitoxin or alcohol used. Recovery.

Case 7.—Vincent D., age 7 years. Pharyngeal. Both tonsils covered with large patches and running along on uvula. No antitoxin or alcohol used. Recovery.

Case 8.—Charles H., age 5 years. Laryngeal and pharyngeal, with great difficulty of breathing, with slight recession of intercostal spaces. Did not intubate, no antitoxin or alcohol used. Recovery.

Case 9.—Mary M., age 3½ years. Pharyngeal. Several large patches on both tonsils and at side of uvula. No antitoxin or alcohol used. Recovery.

Case 10.—Alice M. Pharyngeal. Large patches on both tonsils, several discrete patches on soft palate; came to office to be treated for chronic diarrhea and bronchitis. Child very much emaciated.

Case 11.—Gertrude R., age 11 years. Pharyngeal. Several large patches on tonsils and soft palate. No antitoxin or alcohol used. Recovery.

Case 12.—Eleanora R., age 5 years. Laryngeal primarily; diagnosis also confirmed at Vanderbilt clinic; severe depression at commencement of illness, difficult breathing with recession of intercostal spaces; did not intubate. Gave whisky, twenty drops every two hours; had to stop the alcohol because the child became irritable, restless and unmanageable. No antitoxin used. Recovery.

Inhalation and exhibition of a croup kettle.—Inhalation to be of service, our patient should be placed under a tent; an improvised one can be made by placing several vertical slats beside the cradle or crib with several horizontal pieces tacked upon these, and a covering of rubber sheet or a blanket. An umbrella or parasol with a sheet about it will also make a good tent, but I am in the habit of taking the hoops from off a barrel and tying the ends with string or tape to the opposite side of the cradle or crib, and placing my coverings over them, leaving a small opening at the side when the child is not sleeping. The better the tent, the more satisfactory are the results in inhalation.

The use of steam inhalation is very beneficial because it increases mucous secretions and favors the removal of the membrane.

The air in the tent should be kept saturated by means of a tube from a croup kettle. Care should be taken that the nozzle which conveys the steam is not allowed to come too close to the child, because burns and scalds come from neglect of this precaution.

The apparatus most commonly used is the croup kettle, with its alcohol lamp causing innumerable accidents from fire. It is a clumsy arrangement and is not always to be had in small villages, so they are obliged to send to the town or city for it, causing the loss of considerable valuable time. In the cities you will not always find one to suit at the drug stores. We do not always have gas in the houses of the poor and it is not found in the country, so that gas stoves can be used.

I am in the habit of using in my practice an oil

stove and a kettle, which is commonly called an oil stove kettle, and a piece of gas stove tubing or a piece of garden hose, as nozzle for carrying the steam.

The stove cost forty cents, the kettle ten cents and the rubber tubing ten cents; this outfit costing less than half of what an ordinary croup kettle would cost. The cost of kerosene to be used as fuel will be five cents, while the cost of alcohol for fuel will be seventy-five cents to one dollar for each twenty-four hours.

Oil stoves are found in the houses of the poor, especially during the summer; we can thereby save time and the cost of a croup kettle, besides the saving of the cost of fuel in burning kerosene instead of alcohol, and there is very little danger of accidents from fire.

I may not be the first to present this idea, or the originator of this very convenient, efficient arrangement for use in inhalation; if not, it will do no harm in bringing it to your notice again, thereby refreshing your memories that such a cheap, easily managed, efficient arrangement can be found everywhere. It can be placed on a chair or stool at the side or foot of the bed and the tubing carried on the covering of the tent by pinning pieces of tape around the tubing and to the coverings over the tent.

In getting the rubber tubing see that the ends are a composition which is not affected by the heat from the kettle; the rubber ends will shrivel up and loosen. It is well to place a piece of sponge, held by a bent hair-pin, to catch any drippings of water. We can use a double oil stove if desired, and carry the tubing along the coverings on either side of the child or crib.

THE THERAPEUTICS OF DIPHTHERIA, WITH SPECIAL REFERENCE TO ANTITOXIN.

Presented to the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY W. M. W. GRAY, M.D.

BRIDGEPORT, CONN.

In preparing this paper I have necessarily drawn somewhat upon the articles of eminent men in the profession, which have been published in our medical journals from time to time, so I now express my thanks in general for the aid thus derived, and confess to any plagiarisms that may be noted, without referring specifically to any article or authority, except to emphasize some particular or disputed point.

The therapeutic agents which have been used and have obtained reputation in the treatment of diphtheria are many.

Locally: Iron, the tincture of the chlorid being considered the most effective; lactic acid; bichlorid of mercury; carbolic acid; the digestive ferments, the theory being that they digested the membrane; peroxid of hydrogen; Loeffler's solution, and inhalations of calomel.

Internally: The tincture of iron; large doses of mercury; turpentine; bromin; pilocarpin; benzoate of soda, and sulphate of calcium.

The remedies which have stood the test of time and next to antitoxin are of most value, are alcohol and tinctura ferri chloridi combined with a spray and nasal douche of normal salt solution, and perhaps hot vapor and inhalations of calomel. Of course in tracheo-laryngeal diphtheria intubation at times is necessary, although its use is greatly lessened by the early administration of antitoxin.

The treatment of diphtheria with antitoxin has been a medical question of high interest and first importance ever since Roux delivered his address at Budapest in September, 1894.

In a typical case of severe diphtheria the diagnosis can be made without difficulty. It is in those cases where the symptoms are non-typical and where the membrane covers but little surface, that at times it is almost impossible to distinguish a true diphtheria from ulcerative tonsillitis.

It is in this class of cases that we reap such a vast benefit from a bacteriologic examination, and for which the whole profession, aye, the whole civilized world owe a deep debt of gratitude to the discoverers of the Klebs-Loeffler bacillus, and the same heartfelt thanks should be bestowed on the discoverer of antitoxin. The name of Behring should be engraved, by the side of that of Jenner, in the hearts of the profession, for by their labors we are enabled to control and combat two death-dealing scourges.

In speaking of antitoxin as a remedy for diphtheria, I take it as a foregone conclusion that all admit that the disease is caused by the Klebs-Loeffler bacillus. I can not believe there are any who will fail to recog-this bacillus as the cause of the disease.

In a given case we first have the lodgment of the Klebs-Loeffler bacillus, the parts are infected and the bacilli by their multiplication cause the local inflammation observed, which may vary from a mild erythematous angina to the gravest pseudo-membranous inflammation. The systemic symptoms and lesions of internal organs occur from the absorption of toxic substances formed by the Klebs-Loeffler bacillus. But it is important to remember that in diphtheria we may have severe complications and secondary and mixed infection due to other bacteria, the most frequent and dangerous of which is the streptococcus pyogenes, over which antitoxin has no control.

Admitting these facts, it seems to me that the theory of serum-therapy as applied to diphtheria rests on a sound scientific basis, absolutely proven by experiments on animals and from the results obtained by its administration to human subjects.

Experimentally, an animal is inoculated with the Klebs-Loeffler bacillus or its toxins. The antitoxin is administered and the animal recovers, because the serum arrests the local process, stopping the multiplication of the bacillus and the absorption of its toxins by neutralizing these poisonous substances.

William H. Welch, in 1895, said, "the evidence derived both from experiments on animals and from observation on human diphtheria is decidedly in favor of the view that antitoxin does not directly neutralize the toxin in a chemic sense, but rather that each of these substances acts in an antagonistic manner upon the living cells of the body. It follows, that in order to secure the beneficial effects of the antitoxin treatment the cells must be able to respond to the introduction of the antitoxin serum. This responsive power may be partly or completely annulled by intense or prolonged action of the diphtherial poisons or by other previous or co-existent disease." This is the generally accepted view as to the action of antitoxin, although the results obtained by Ehrlich in some recent experiments as to the *modus operandi* of the antitoxin seems to favor the theory that the antitoxins neutralize the toxins by direct chemical action; for a detailed

account of these experiments I must refer you to his article in the *Fortschritte der Medicin*, Jan. 15, 1897.

I believe the only way to decide as to the value of a particular line of treatment is to carefully weigh the evidence for and against it, which evidence is of three kinds:

1. Statistical evidence; that is, reliable mortality tables showing the percentage of fatality in a large series of cases treated with and without it.

2. The individual opinion of men of the foremost rank in the profession, noted as careful observers and clinicians—these men giving their opinion after carefully observing and treating a large number of cases.

3. The evidence of the members of our profession who have used antitoxin to some extent and kept records of a fair number of cases.

Certainly all evidence gathered from these three sources is overwhelmingly in favor of antitoxin as being the best remedy for diphtheria, giving better results than any other known treatment. As Professor Welch of Johns Hopkins Hospital remarked, "It is highly significant that the testimony in favor of antitoxin is the strongest and most positive among those who have had the largest experience in its use; whereas, the doubtful and uncertain opinions come mainly from those with limited experience in the employment of antitoxin."

Statistics.—I have collected the following statistics from various sources, trying to cover as large a field as possible. The statistics of antitoxin are not as great in number as those of cases treated without it and do not cover so long a period, still there have been enough cases treated of all types to warrant the drawing of final conclusions.

Bosworth, in his admirable article on diphtheria, in his text-book on "Diseases of the Nose and Throat," prints statistics obtained from Stern, Martin, Agnew, Lovett and Monroe, these authors having collected them from all quarters. Fifty-four thousand six hundred and sixty-five cases were laryngeal; on all of these tracheotomy was performed, with a death rate of 72.86 per cent. He collects from reports by Stern, Dillon, Browne and Waxham, 4,336 cases, which were intubated, death rate 72.8 per cent. These were not treated with antitoxin.

In the first report of the American Pediatric Society's collective investigation from private practice, we find 533 cases of laryngeal diphtheria in which intubation was performed. These cases treated with antitoxin, giving a death rate of only 25.9 per cent. I quote from the report of the committee, as follows: "The most convincing argument, and to the minds of the committee an absolutely unanswerable one, in favor of serum-therapy, is found in the results obtained in the 1,256 laryngeal cases. In one-half of these recovery took place without operation, in a large proportion of which the symptoms of stenosis were severe. Of the 533 cases in which intubation was performed, the mortality was 25.9 per cent., or less than one-half as great as has ever been reported by any other method of treatment." In the second report for 1896-1897, we find 1,704 cases of laryngeal diphtheria. Of these, 1,036 cases were not operated on, 178 died, a mortality of 17.18 per cent.; 668 required operation, and of these 182 died, a mortality of but 27.24 per cent.

From the report of the German Board of Health (Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1897, Vol. xiii, p. 254) relative to the use of antitoxin in the German hospitals, I find the following: From April, 1895, to March, 1896, 9,851 cases were treated with antitoxin; of these 1,489 died, a mortality of 15.5 per cent. In the same report is found the fatality of diphtheria occurring in German hospitals from 1883 to 1894; these cases not being treated with antitoxin; during this period 157,721 cases were treated; of these 42,176 died, giving a mortality of 26.7 per cent.

I think we can be certain that these various reports are correct, and no matter what may be said against statistics, I believe the foregoing to amply show that the death rate in diphtheria is reduced, by the use of antitoxin, from an average of 26 to 15 per cent. in ordinary cases, and in laryngeal diphtheria from 72 to 26 or 30 per cent.

I select for my own report a series of twenty-three cases which I have treated during the last eighteen months. I have made a careful study of each case and have been able to keep them all under observation. Diphtheria was proved bacteriologically in every case.

Twelve of these cases were laryngeal; three were of an extremely severe type, the remainder not severe, in that the nasal passages and larynx were not involved at the time of my first visit.

The twelve cases of laryngeal diphtheria occurred in children from the ages of 1 to 6 years. Nine were treated with antitoxin, three were not. Of the nine treated with antitoxin nine recovered; of the three treated without, three died; of this number one was moribund and died within two hours after I saw the case.

Group 1.—The child that was moribund on my arrival was 3 years of age and had been sick four days. Her brother, a little over a year old, had been sick two and one half days and the membrane involved the fauces, larynx and nasal passages. I gave 1,000 units, repeated in eight hours, and gave 800 units twelve hours subsequently. The child recovered.

Group 2.—Three children in the same family, respectively 6, 3 and 2 years of age. They were affected with diphtheria nearly simultaneously, and I saw them at the beginning of the third day. Owing to strong objections on the part of the parents I was unable to give antitoxin, although I urged that the delay would be dangerous. On my visit on the following morning I found that the 3-year-old child had died during the night. The parents now requested me to use antitoxin, which I did, giving three injections to each remaining child; both recovered.

Group 3.—Two children in a family; one 3 years of age, one 2 years old. On my first visit I found the older child suffering with laryngeal diphtheria, the other child having diphtheria also, the fauces being alone involved. I was called to the case late in the evening and was unable to secure any antitoxin for thirty-six hours. In the interval the older child died. By this time the membrane in the throat of the other child had extended to the larynx. I administered 1,200 units, repeated in eight hours and gave a final injection of 800 units twelve hours afterward. The child recovered.

All these cases occurring as they did within a month of each other, and being as it were in groups of twos and threes, I can not help believing that if the two children dying had received the serum treatment two human lives would have been saved. No one can *positively* state in a case of death that recov-

ery would have taken place if a certain remedy had been administered. Nor on the other hand can we absolutely affirm that recovery was due to a remedy given, and that death would have taken place if it had been withheld; but we can reason from probabilities and if we see case after case of an extremely fatal disease recover by the use of a certain line of treatment we must assign to it something more than chance. The whole basis of our therapeutics rests on this principle.

The remaining five cases of laryngeal diphtheria occurred in children between the ages of 2 and 6 years. Three cases I saw at the close of the second day; one on the third and one on the fourth. I can simply state that all of them showed symptoms of severe stenosis and all were profoundly sick children. All received large doses of antitoxin and all recovered, and in no case has a single unfavorable symptom presented itself. But I have noted that in these cases, within five or six hours after the first injection of antitoxin, the breathing became easy and the voice less harsh and croupy and the general condition improved.

Baginsky remarks that "cases of laryngeal stenosis and more especially those which do not come to operation, speak to me more forcibly than statistical figures. The surprising regression of the laryngostenotic respiratory phenomena, the disappearance of the harsh voice and the croupy cough, the euphoria of the children, the change in their general condition, so that in two days after an injection they were sitting up in bed playing contentedly and observant of their surroundings, all of these things produces in him, who has had before his eyes for years the hopeless picture of continually progressing laryngeal stenosis, in very truth ineffaceable impressions."

Of the remaining cases of my own, none were laryngeal; eight occurred in children between the ages of two and nine years; three in adults between twenty-three and forty years of age. Six of these presented the disease in a severe type, not being seen till the third day. The other five received the initial dose within the first twenty-four hours.

Some of the advocates of antitoxin try to prove by a number of cases that more recovered by the use of antitoxin, and that all would have died without its use. These statistics are not of themselves sufficient, but there should be an analysis of the number of cases, the age of the patient, the number of days the disease has been in progress, its type and variety; then by reasoning from past experience, we can draw conclusions. I have only given statistics of cases treated with antitoxin that were analyzed in this manner, and as such, in my judgment, they are reliable.

Welch says: "A most convincing demonstration of the human power of antitoxin is supplied by the experience of Baginsky during an involuntary pause in the serum treatment, caused by failure of supply of serum. Between March 15, 1894, and March 15, 1895, there were treated in Baginsky's service in Berlin, by antitoxin, 525 children, with a fatality of 15.6 per cent. During the period of enforced interruption of the serum treatment, this period being chiefly the months of August and September, 126 children were treated *without* antitoxin, with a fatality of 48 per cent. There was absolutely no selection of cases in either group." In his comments on this experience, Baginsky says: "It is all the more remarkable as the ratio of mortality of those treated with the serum, both before and after the period of interruption varied in very small percentage. If one will permit figures to speak at all, there has scarcely been made on human beings a more demonstrative test of the curative power of a therapeutic agent. It was an experiment forced upon us, but it proved to us how numerous would have been the victims without the use of healing serum."

A similar experience has been reported by several other writers. Korte noted a rise in fatality from 33.1 per cent. during the serum period to 53.8 per cent. when the supply failed.

Ganghofer, under similar conditions, noted a rise from 12.7 to 52.2 per cent. Hein, from 22 to 65.6 per cent.

A good deal of controversy has arisen in a few fatal cases occurring from the use of antitoxin. I think it a conservative estimate to say that over one hundred thousand injections of antitoxin have been recorded. I believe the treatment speaks for itself in the few accidents that have happened. I distinctly remember the case of a girl of 11 years, who died of diphtheria in 1892. She had an attack of diphtheria, the membrane not involving the larynx or nasal passage The second day of the disease she sat up in bed and asked her mother who was in the adjoining room to bring her something. Before her mother reached her bed, she was dead. The medical opinion given was, that death was due to cardiac paralysis. If this patient had received, just before death, a dose of antitoxin, the serum would have been blamed. May it not be that some of the few sudden deaths laid at the door of antitoxin were due to a like condition, and *not* to the use of the serum?

There is a right and a wrong way to administer antitoxin. The admitting of a quantity of air with the injection, a dirty needle, the filling of the syringe with a strong solution of carbolic and failing to expel it all before refilling it with serum—all of these blunders may cause symptoms and results for which antitoxin should not be blamed.

It is impossible, in any case of diphtheria, to say whether the case will improve or laryngeal stenosis develop, or what complication will arise or sequelæ occur from the action of the diphtheritic virus or streptococcus sepsis.

It is the opinion of the most noted men and of the majority of physicians that antitoxin is the best agent at our command to prevent these unfortunate results from supervening by neutralizing the effects of the Klebs-Löffler bacillus, thus putting the patient in a position where he is not so susceptible to secondary invasion. It takes a definite quantity of antitoxin to neutralize a definite quantity of toxin; we can not tell, in the human subject, just how much of the toxin has been formed by the diphtheria bacillus, therefore antitoxin must be given in large quantities, and the earlier the better; administered early it will arrest the diphtheritic process, and it is the duty of every physician to use it in mild as well as in severe cases. It offers the best chance of saving life in the latter, and as we know not how soon a seemingly mild case may turn into one of a severe type, we should by giving the serum cure the disease and prevent its assuming a dangerous character.

In making a diagnosis of diphtheria I believe we should note all the clinical features presented and form our judgment from these. At the same time a culture should be taken and a bacteriologic report

obtained as soon as possible. If the physician believes the case to be one of true diphtheria, let him treat it as such, using antitoxin, giving the patient the benefit of the doubt and every chance of recovery. If this is done and the case proves to be one of true diphtheria, much valuable time will be saved and many grave complications be warded off. If, on the other hand, the case is not one of diphtheria, the tentative dose of antitoxin will have done no harm, notwithstanding a few opinions to the contrary. I do not believe properly prepared antitoxin, administered in a proper manner, can cause bad results.

We must consider the discovery and application of the antitoxin treatment as an advance in our glorious profession. It is not a sudden and brilliant find, but it is the outcome of persistent work in the laboratory. The investigators in this field had a set problem to solve, and finally have done so, but only after patient toil and labor.

DISCUSSION OF THE PAPERS ON DIPHTHERIA.

Dr. FREDERICK A. PACKARD of Philadelphia—When asked if I would open the discussion on the antitoxin treatment of diphtheria, I wrote to Dr. Tuley and told him I thought it would hardly be worth while to discuss the antitoxin treatment of diphtheria with any man who could not discover enough in the published statistics to convince him. I think this is true; the published statistics at our command must now convince any man who can be convinced at all; I have, therefore, prepared some statistics, which have been pretty well covered by Dr. Gray's paper. I admit that statistics and figures can lie. But statistics and figures differ somewhat from the human being, inasmuch as statistics and figures as they grow bigger lie less; human beings are likely to lie more. Hence, the greater the statistics are the more accurate they are. Dr. Gray has brought sufficient of them, I believe, to convince anybody who could be convinced. I would like, however, to know how it is possible for anyone who is skeptic to explain the experience of Baginsky and Roe. Their mortality increased so markedly when their supply of antitoxin was exhausted, and when they obtained a supply the mortality percentage ran rapidly down. I can not understand how anyone can get over this point made by Baginsky and Roe.

There is one point I was sorry not to hear brought out and that is the use of prophylactic doses of antitoxin. I am a staunch believer in the therapeutic use of antitoxin, but I am beginning to be a disbeliever in the prophylactic use of this remedy. Quite a percentage of fatal results have occurred after the prophylactic use of antitoxin. The death of the child of Professor Langenhaus, for instance, was after a prophylactic dose of antitoxin. So it is a question in my mind whether we have a right to use prophylactic doses of antitoxin in healthy people. I believe we should treat every throat exposed to diphtheria as every physician should treat his own throat when treating diphtheria, by using antiseptic washes to wash off all the Klebs-Loeffler bacilli collected there. I have seen some cases where I felt I had done something to prevent the spread of diphtheria, although they might not have had diphtheria if no preventive treatment had been resorted to.

Dr. WILLIAM P. NORTHRUP of New York—I wish to say something in regard to the prophylactic use of antitoxin. In the New York Infant Asylum they stopped a furious epidemic of diphtheria by prophylactic injections of small doses of the serum. It was so serious an epidemic that my telephone rang me out at 6 o'clock on Sunday morning to go to Mount Vernon in consultation. That is, the consulting staff was summoned in consultation, and when it was serious enough for that and for us to have to go, you know it was important. There were no deaths among the adults; there were plenty of deaths among the children, but the epidemic was stopped by prophylactic injections and there were no accidents from the injections.

With regard to the collective investigations, without rehearsing figures which are very familiar to me, as I hope they are to you, the Pediatric Society sought to place a crucial test on the value of the antitoxin treatment of diphtheria. In order to have a test they must first of all have a control. We looked back on the records of intubation and we said the statistics of intubation are sufficient to act as control and so we will lay our stress on intubation cases of laryngeal diphtheria, since antitoxin was well established, not in the experimental stage when the serum was uncertain and the dose not well understood. You will understand the nature of the work of the committee when I tell you there were 60,000 circulars sent out, from which we received 1,900 returns, 1,700 of which we could use, and of this number 600 cases such as we were looking for, intubated cases of laryngeal diphtheria, cases bad enough to demand intubation. There might be differences of opinion about a child that is hoarse or croupy or that had stenosis, but if it was so bad they had to put in a croup tube or a tracheotomy tube, I assume we will all admit that it was a case of severe diphtheria. Altogether there were 668 such cases for the test of the value of antitoxin. In pre-antitoxin days if we got twenty-five recoveries in a hundred we did very well, and 27 per cent. of recoveries was about the best we could do. I have lived at the elbow of Dr. O'Dwyer and I know what his experience has been, and I have tried to guide my experience by his. At one time I had twenty-two successive deaths in private practice from laryngeal diphtheria after I had put in a tube, and not because I had put it in so badly for I had a very good record before that. On top of that Dr. O'Dwyer had twenty-five cases of death with all the best treatment we knew then. I only cite that to say that I have not heard of anybody having a series of deaths so distressing as that in the past year or two. These 668 cases then represent a severe type from all over the country. A large part of the returns came from west of the Hudson, all the way from around St. Louis and away up in Michigan, so there was no chance to cook the terms and very little opportunity for accidents. You will please note that in the best of the control cases the very best we could get was twenty-seven recoveries in a hundred, and in the last report of 668 cases there were twenty-seven deaths in the hundred. Whereas before there were twenty seven recoveries in the hundred, now there are seventy three. I would base my reasons for urging you to adopt antitoxin for the treatment of diphtheria on these figures.

Now a word about the dose. Some cases among the returns we received reported 200 units used in a bad case of diphtheria. A few cases were sent that even did not give the amount of antitoxin used, so carelessly were our circulars read by some. I would like to give you my convictions, because I have been thoroughly saturated with this work for four of five years. In the New York Infant Asylum we have about 800 children in one block, and that is rather a bad place to have diphtheria. We used to have rather bad times there when we got diphtheria, especially if we got it mixed up with measles. Now it is the prevailing feeling among the laity, among the nurses who take charge of these cases that diphtheria is shorn of its terror. They have more fear of measles. One of them said to me: "Why is it, Doctor, when the cases of diphtheria come back to the ward we do not have diphtheria in the ward?" She did not recognize the fact that we made many, many cultures, and did not permit the case to return until these were entirely negative.

At the Presbyterian Hospital we have a miserable, little, children's ward. This small ward has turned out eight cases of diphtheria among the nurses. None of the children had it, but they did have what from my standpoint I recognized as a little nasal discharge. There has been so much decrying of the bacteriologists' work that I mention this instance.

I believe antitoxin is just as much a specific for diphtheria as is quinin for malaria. I believe, thoroughly, if you were to inoculate a baby two years old, you could nullify 1,000 or 2,000 units with a relative proportion of the antitoxin. In other words, I believe it is a specific in the human just as much as in the guinea pig. In the guinea pig it is a true specific. Anything that disturbs that in the child takes nothing from the definition. A tuberculous temperature will stay a tuberculous temperature in spite of antitoxin.

As to the dosage of antitoxin, I believe we should inject not less than 2,000 units, and this dose should be repeated in twenty-four hours if there is no manifest improvement, and again in twenty-four hours if no further improvement takes place.

Dr. LOUIS FISCHER of New York—When I first saw the efficacy of antitoxin in 1894, I only had a repetition of what I learned from Professor Behring in 1891. We were then still skeptic regarding the antitoxin of diphtheria because of the failure of tuberculin. Last summer while going through his Children's Hospital, Professor Baginsky told me he had no more dread of diphtheria since he was using antitoxin than he would have had years ago from any simple ordinary constipation. In fact, he said he wished he had as strong a specific for the other infectious diseases as we have today for diphtheria. I watched the cases under his treatment and a case of malignant diphtheria would receive 1,000 to 1,500, in some cases 2,000

units, and in twenty-four hours be transformed into a case of simple sore throat. I think the question of the dose should not be answered definitely, for if I were to ask you the dose of castor-oil to be given in a case of constipation, you would have to say that would depend on the cause of the constipation. While one case might be relieved by a teaspoonful, another would require a tablespoonful. Also, we must look into the idiosyncrasy of the patient. I have seen some cases receive 6,000 units. But I believe a good round dose of 2,000 units would be a good beginning dose in a malignant case of diphtheria. I think we have gone over this subject quite thoroughly and we who have watched the work of the foremost men, especially on the other side of the Atlantic, will have no fear of the result with antitoxin. I have seen the membrane thrown off in so short a time that I have no hesitancy in saying a case will get well. I saw this afternoon, before leaving New York, a case with distinct septic symptoms, malignant diphtheria, temperature 100 degrees, that low temperature that I regard as so malignant, the child decidedly pale and anemic from the whole system being drenched with the septic element, besides the loss of sleep and the want of food, inanition, all of which goes to make diphtheria so malignant. The first thing to do was to relieve the asphyxia by putting a tube into the throat, and then we considered the further therapeutics of the case. We injected at first 2,500 units of antitoxin and I agreed with the physician that if the child's condition is not better by 9 o'clock tomorrow morning, to give the same dose again. Those are things we have seen so often it seems almost useless to talk about them.

As a rule, if the child is not moribund it must get well when treated with the proper dose of antitoxin. One case will require more of the antitoxin, when the system is overwhelmed with the toxin, and another will require less. I know, in talking this matter over with Professor Jacobus, he was not anxious to use antitoxin until he knew what others had done, but now he considers it a crime to treat diphtheria without the use of antitoxin.

Dr. H. A. WEST of Galveston—The idea I have had in regard to the *modus operandi* of the diphtheria antitoxin has been that it is a remedy, as the name indicates, that is especially active as an antidote to the toxin of diphtheria. Now when it is claimed that this serum acts upon the bacilli, that it has an effect upon the lesions produced by the bacilli in addition to its antidotal effect upon the toxins, it involves an entirely different explanation. I do not mean to doubt that it does accomplish this, because I think the facts go to prove it, but if it has been conclusively proven that the diphtheria serum will cure those cases of diphtheria, then it must be admitted it has an effect not only on the toxins but also on the bacilli. That is the question I wish to ask. What is the explanation of the action of the serum in the treatment of the cases of laryngeal diphtheria?

Dr. H. A. ARNOLD of Pennsylvania—On the advent of antitoxin I hailed it with as much delight as any one. I began its use early and for the time everything seemed auspicious. There were prompt manifestations. The membranes separated and it was possible to prognosticate changes and see those changes afterward. During the early part of the winter just passed, I was called to see a child that had been treated, by another physician, for tonsillitis. A bacteriologic examination revealed the presence of the bacillus and satisfied me as to the nature of the disease. I used the antitoxin, considering that I had a good chance of recovery, but the child died. About two miles from that place I had a child sick with diphtheria. I used the antitoxin. The membrane disappeared in the throat. There was an abnormally slow pulse, dropping to 50, 45 and 40 beats to the minute, and the boy died. About two miles and a half from there I used antitoxin in another case about the same age. I believe the children were six, seven and nine years of age. I had a disappearance of the membrane, but there was complete suppression of the urine and the child died. The point I wish to make is that this serum was procured from one of the most reputable makers in this country, but every bottle contained the same number and the same letter. I took the numbers to the manufacturer and asked an explanation. The proprietor appeared very anxious to give an explanation, but the bacteriologist in charge of the laboratory evaded me. I have had no other deaths; I have treated no other cases of diphtheria since.

Dr. COOK of Illinois—The doctor whose cases all get well is a poor diagnostician. As a matter of fact, I have a record of eighty-nine cases, microscopically diagnosticated, without a death, without an intubation and without a second dose of antitoxin. They were as cases run in private practice.

THE CHAIR—Please state the number of units and the potency used; you need not mention the maker's name?

Dr. COOK—2000, I think; I have not my statistics in shape to give them. I only spoke of this, as the Doctor on the other side of the house spoke of his fatal cases, to balance the evidence on the other side if it is possible to do so. I made my first observations in Berlin, under Professor Baginsky. My first case I saw in the Charité and it was a marvelous thing to see the membrane disappear from the throat without a single thing having been done, further than the use of the antitoxin. The eighty nine cases I have mentioned received, on an average, about 2,000 units. Once or twice I gave only 1,000 units, and as far as I could see they did as well, although they were mild cases. I always reserve the right to repeat the dose.

QUESTION—Will the Doctor state how many of those cases were cases of laryngeal diphtheria?

Dr. COOK—No, I can not exactly, but I should say ten or fifteen of them. I have the record of the cases but did not bring it with me because I did not expect to report the cases. There were some quite bad cases. In reference to the matter of intubation, and I do intubation occasionally, although I have never done it on my own cases, it seems to me intubation is a good deal like a boy whipping his horse when he has a whip. If you are at hand with your tools the child will often need intubation, whereas otherwise it would not.

Dr. C. GRAEFE of Sandusky, Ohio—I should like to bring up one point, the suspicion not only of the laity but of the profession at large in regard to these statistics. These statistics, as cited here, are principally those of hospitals, besides those of collective investigations. But they are so large and extensive that the general practitioner is likely to be suspicious of them. When the matter is brought home to him, there is so much made of one failure that he hesitates a long time before he will give the new treatment any consideration or will venture its use in private practice. Last winter I found myself in this position during an epidemic. After using the ordinary remedies for the ordinary types of the nasal disease, there developed suddenly a great line of laryngeal cases. They died very promptly under the ordinary treatment; only here and there one got well. According to the report of the health officer, the statistics of the epidemic show fifty-three deaths and forty-seven recoveries. These include my cases besides all the others reported at the health office. My cases, where I used antitoxin only for the laryngeal cases, show a record of fourteen recoveries out of sixteen cases of laryngeal diphtheria. In three other cases in the practice of other physicians, where I used it at their solicitation, there were three deaths. They neglected to do what I would have done, that is to repeat the dose in twelve or twenty-four hours. Some of those cases were better in twelve hours, worse in twenty-four hours and promptly died. I think these cases show about what they bring forth in hospital cases, but my reason for presenting them here is that the general practitioner should have impressed upon him that he can do what they do in the hospitals and his mortality can be made as good as that I have here presented.

Dr. MCFARLAND of Philadelphia—My administrations of antitoxin number something over three thousand, but unfortunately they have been given to animals. It seems to me that in this whole discussion the antitoxin treatment of diphtheria has been treated as though it rested on an empiric basis, whereas in reality it rests on scientific principles worked out in the laboratory. Nobody doubts the utility of the hydrated oxid of iron in the treatment of arsenical poisoning, because he knows from laboratory experience that it is an antidote for the arsenical poisoning. Nevertheless, many cases die from arsenical poisoning notwithstanding the use of this antidote. So it seems to me it is foolish for us to condemn the use of antitoxin in diphtheria because some cases die notwithstanding its use. I will give you some cases to show that antitoxin will do some good. I have seen two horses die after the injection of one cubic centimeter. About six weeks ago, in the laboratory, I gave a horse 100 c.c. of antitoxin serum. I can not give you the strength of the serum, but it was I suppose a serum averaging 100 or 150 units to the cubic centimeter. The first day I gave 1 c.c., and the next day 150 c.c., and the horse showed no symptoms. A definite amount of serum will protect a guinea pig against an equal amount of toxin. Thus, 10 c.c. of the serum will protect against 10 c.c. of the toxin, and 100 c.c. of the serum will protect against 100 of the toxin. I have no theory of my own to present. I am rather inclined to that presented by Dr. Klebs, that the antitoxin is a toxin in a changed form, that the toxin is in some way oxidized or transformed. At any rate, it is an absolutely certain antidote, a neutralizing agent.

Dr. G. W. COX of Chicago—One point very frequently overlooked is the selection of the serum. It has been my fortune to go around and inquire for diphtheria antitoxin a number of

times in Chicago, and when I would ask my druggist for it he would go to a room with a temperature of 75 or 80 degrees. When I would ask how long the antitoxin had been there he would perhaps say two or three months. It has been demonstrated that the antitoxin must be kept in a cool place or it will lose its potency in a short time. I have no doubt in the world that many of the failures in the use of antitoxin may be traced directly to this source, that antitoxin perfectly good and potent in the beginning has deteriorated by being kept at a high temperature.

Dr. MAYER of Johnstown—There are a few minor points brought out by Dr. Coughlin that should not go unassailed. They are minor points and do not touch on the value of antitoxin. To my mind, and to the mind of the majority present the remarks of Dr. Packard apply to antitoxin. But Dr. Coughlin spoke of punishing children with this disease. We all know the depressing influence of diphtheria on children, and anything which will depress the child further is so much against recovery, and anything in the nature of pain will be against recovery. Bribing and coaxing and anything else that is not punishing will be a good plan. Another thing he proposed was the use of ice cream. If ice cream is not too sweet, it will do no harm. I believe if we will instruct our nurses to make an ice cream without sugar it will do no harm and will do good. The Doctor assailed the use of whisky. There is no question in my mind but whisky is essential. The truism was brought out by Dr. Rosenthal that the doses and the limitations of antitoxin applies as well to that of stimulation in diphtheria.

Dr. H. H. WITHERSTINE of Rochester, Minn.—I wish to report twenty five cases recently treated, with one death. In one family there were ten children. When called on to see the first child taken sick, I isolated the child and administered the antitoxin about 5 o'clock in the afternoon. The child seemed to me to be very sick and had been ill for three days. The pulse was 140. The next day the membrane came off the throat and the child was playing. I kept the child isolated from the rest of the family until the bacteriologic examination revealed no more germs. Then the child was permitted to go with the rest of the children. Unfortunately, a few weeks after that, another child was put to sleep in the same room where this child was sick. I speak of this to bring out the point and emphasize the importance of more thorough cleansing and fumigation. I want to emphasize the point, too, that fumigation as practiced in most cases is entirely useless. Another child was taken ill with diphtheria, and so on one after another, and I used antitoxin in every case, using only one dose of 2,000 units. Coming to the last children, I made up my mind they also would have diphtheria and I injected the prophylactic dose, and they did not have diphtheria.

I want to call attention to another point that I consider quite important in using antitoxin and that is having the antitoxin syringe thoroughly aseptic, thoroughly sterilized, and after it is used to thoroughly sterilize the point of injection and dress it as the surgeon does his wounds, in an aseptic manner.

Dr. EDWIN ROSENTHAL of Philadelphia—It is rather unfortunate in arranging these statistics that some stress is not paid to the mortality during the epidemic. The mortality in the epidemic I studied was not better than before the use of antitoxin. I say this with all due respect to the feeling of the Society. This afternoon I talked with a physician about an epidemic that had been raging for the past two weeks, during which 102 cases were treated and three deaths resulted. In only some five or six cases of this total was antitoxin used. Consequently, in estimating our statistics it is well to acknowledge that the mortality at different seasons of the year, at different institutions and in different constitutions differs materially. For example, had antitoxin been used in these 102 cases, the list would have gone to swell the good statistics of the antitoxin treatment.

Dr. HOUGHTON of Detroit—There are two points I wish to refer to. One is the statistics where antitoxin is used and where it is not used. During the twelve months preceding April last, in the city of Detroit, according to the report of the health officer, between eight hundred and nine hundred cases were treated. Nearly all of these cases were examined and diagnosticated by bacteriologic examination. About 400 of these cases were not treated with antitoxin, the other 400 were treated with antitoxin. The mortality of those treated without antitoxin was 34.9 per cent., while in those cases treated with antitoxin the mortality was 12.5 per cent. That includes all the cases during the year.

In regard to the explanation of sudden death after the use of antitoxin, I would like to relate a case that occurred in Iowa. The doctor was called to a family where three members were suffering with diphtheria. After consultation with the family he concluded to use antitoxin and that he would begin by injecting the older patient, a young man. The young man was walking around, suddenly he said he felt a little pain, lay down and died in a few minutes. No antitoxin had been used. The other two children were injected and both were saved. I have frequently noticed in immunizing animals, that after a large dose was given there sometimes follows diphtheritic paralysis and the animal dies suddenly.

As to prophylaxis, I do not believe antitoxin has been used as much and with as good success as it might be. During the past few years I have had to deal with diphtheria in the wards of the Children's Hospital. I was called in consultation two years ago, and most of the physicians and myself agreed that it would be a good plan to use diphtheria antitoxin as a prophylactic. Thirty four patients were injected. The house physician, however, was not injected. We had no more cases develop, except that the house physician developed a marked case of nasal diphtheria. Afterward we had an outbreak, and I was called again, but the epidemic was stayed. During November we had a third outbreak, which was also stopped, and during the month of February we had another outbreak, which was as promptly stopped. Three of the children injected were under 3 years of age and no detrimental results were noticed in any of the cases, except there was a slight urticaria in nine cases.

Dr. LOUIS FISCHER of New York in reply to Dr. West—I believe the question is one which involves the basis upon which most scientific work has been done. We all know that in treating diphtheria we try to overcome the damage done by toxins, or poisons, created by the bacilli. Many experiments have shown that the bacilli will persist for weeks and months after the case is supposed to be well. That is to say, if a bacteriologic examination is made of a specimen taken from the site of infection, we can cultivate the bacilli for weeks after there are no macroscopic evidences of infection. Therefore we do not in this treatment attempt to attack the bacilli so much as the swelling and edema, the results of the invasion of the bacilli and their products, the toxins. The treatment of diphtheria, as has been stated here, is one of those positive treatments in which we inject a substance that is capable of controlling the disease just as we can control arsenic poisoning with the hydrated oxid of iron. We know that by injecting a sufficient quantity of antitoxin we merely neutralize the toxemia which causes destruction. I should like to be put on record, though, as not being one of those gentlemen who every time he sees a Klebs-Löffler bacillus in the throat or mouth insists on using antitoxin. I am not one of those bacillophobists. On the other hand, I believe in using the antitoxin in cases that eminently need it.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

XVII.—DISEASES OF THE HEAD AND FACE.

(*Continued from page 1065.*)

We shall here give the supposed relations existing between the brain and the liver. Chopart, Desault and Mursinna interpreted abscesses of the liver as a consequence of a cranial injury, as well as a concussion of the liver; later, Desault considered the relation unknown and probably brought about by the nervous system. Pouteau caused more blood to enter the aorta descending than ascending by interrupting the arterial and compressing the venous circulation; in this wise the liver became more highly inflamed, being supplied by two vascular systems. Richter and Cheston were of the opinion that the ulcers of the liver resulted from the acridity of the bile and charged it to the consensus existing between the skull and the intestines; at times they believed them the effect of direct injuries to the liver. Gradually a reaction against trephining became apparent in France. It was known that within sixty years Mery had not saved the life of a single trephined patient in the

Hôtel Dieu of Paris. Likewise Maréchal, the head surgeon of the Charité, lost more than one-half of the patients he had trephined, while in Versailles and Fontainebleau, out of twenty operated cases scarcely one died. The consequence was that from about 1780, trephining was abandoned in the Parisian Hôtel Dieu. And so we enter upon the third period with Desault. First of all he disputed that trephining of itself was without danger; on the contrary. The admittance of air into the great cavity could in no wise be an indifferent matter especially in unhealthy hospitals. When Desault entered the Hôtel Dieu, he trephined like his predecessors, with the same unfortunate results. That the mere presence of a fracture did not indicate an operation, had already been established; yet, was one to trephine when without a depression it was accompanied by appearances of compression? Also, experience taught him, that he had to take the risk of an operation upon himself. Later, he trephined only in the most urgent cases of fractures with depression or with indications of compression. But he also gave up this method; because he usually attained the required results by grasping the fragments with forceps. Furthermore, he did not believe that suppuration of the brain indicated an operation, for one could never know whether there was any pus present and where located, if any. So during the last five years of his life Desault did away with trephining entirely on account of its dangers, its poor results and the great success of his new method. In all this time he safely treated more injuries of the head with depression without the trepan than with it. (It is an old story, yet it will ever remain new, that no one will believe until taught by experience. So we come across Dieffenbach, who underwent the same experiences as Desault. During the first years of his practice he trephined often and saw his patients die; then as his experience grew apace he restricted the operation to a few exceptions.) Desault treated fractures of the skull with blood-letting, stimulants and purgatives. Schmucker's cold compresses were unknown to him and to the rest of the hospital surgeons in Paris. He restricted himself wholly to the above general remedial agents. Among the stimulants, a cantharides plaster spread over the entire head at first appeared to him the best method of treating concussion of the brain; but the effect of the same not lasting and the patient relapsing into a stupor, he gave up this plan and used tartar emetic. This he prescribed more especially to stimulate than to evacuate in doses to be taken about every ten days without interruption; he also ordered enemas. The more he became convinced of the astonishingly favorable results produced by the use of the tartar emetic, the greater became his aversion to trephining. The inflammation of the brain and its membranes seemed to him to be either of a phlegmonous or a bilious nature; if the former was the case, repeated bleedings, leeches, rigid dieting, fresh air and enemas were required; if the latter, no bleeding, but tartar emetic and purgatives were resorted to. Inasmuch as the same symptoms shown by afflicted patients with cranial injuries indicated very different affections of the brain, those of compression, concussion and inflammation being more or less alike, so that the origin remained rather doubtful, the treatment was thereby rendered very difficult. Therefore, Desault, if there existed any doubt regarding the diagnosis, desired to employ such methods as would do no harm.

Another great opponent of trephining was found in Lombard at Strasburg (1796), after he had seen troublesome fractures heal without it with a strict mode of living. According to his ideas, out of twenty-five trephined cases only five would recover, and these could, perhaps, have been cured without an operation. The indications which had first given rise to the use of the trepan, namely elevation of depressed fragments, extraction of splinters and draining of extravasations, should constitute a limit beyond which no one is allowed to go. Arnemann (1799) expressed similar views against the malpractice of trephining, yet thought there were cases when operation was indispensable.

Speaking of the operative technique, we shall briefly remark that the instruments were gradually simplified. J. L. Petit invented an elevatorium, which was supported by a small block; Cheselden and Sharp again introduced the trephine, which since then has been the main instrument used by the English; Pott and B. Bell preferred the large trepan crown to the small one; Theden scraped the bones of children with glass; Richter recommended the old forgotten tripod instead of Petit's and Louis' elevators. The movable pyramids of the crowns were contrived by Bichat, and a saw by Hey, with which instead of the trepan he trusted himself to remove any fragment of bone. Hill opposed Pott's oval incision and advised the crucial, and unlike him applied the trepan to the side of the fissure, not on it. The removal of the oval-shaped piece of skin and the exposure of the entire fracture Richter also disapproved of, and he removed only as much as necessary. He first perforated where the skin was badly contused, while Bell trephined on the most depressed portion of the fracture, because he thought it the place where the blood would settle. Proceeding from the principle to heal all wounds by quickly joining, he contrived a new plan, by not wholly cutting away the piece of skin of the cranium, only loosening the same, putting the trepan on the periosteum, which was not scraped off on account of its insensibility, and then adjusting the flap by adhesive plaster and sutures. Regarding head-bands we will make use of the opportunity here afforded to rummage among the bandages so as to give an idea of their great size and at the same time promise never to stir up the dust among them again. Already Verduc had reduced the number of bandages, of which seventy different kinds were described by Gesner. Heister furnished twenty-one illustrations, and Henckel, in the year 1756, gave a description of seventeen bandages, as follows: 1. The large or four-cornered head bandage or cap, the large bandage of the head, capitium magnum or quadratum, tegumentum capitis quadratum or magnum, fascia capitis magna or quadrata or quadrangularis; le grand couvre chef, le couvre chef en quarré. This was the most frequently used bandage, especially after trephining. 2. The small or three-cornered head band or cap, like the above, but not so warm, consequently more appropriate for the summer. 3. The screw hat, mitra Hippokratis; in cases of severe headaches, hydrocephalus and congestion. 4. Funda capitis, frondium; for cranial injuries. 5. The six headed bandage, the cancer of Galen; also used for cranial injuries, particularly in hot air. 6. The uniting head bandage; for wounds of the forehead and eyebrows. 7. Scapha; for wounds of the base of the skull. 8. Fascia stellaris, stella; for the compression of the temporal

artery, after the extirpation of the parotid and submaxillary glands. 9. Oculus simplex; for injuries to one eye, the eye-lids and cheek. 10. Oculus duplex capite simplici; for both eyes. 11. Fascia triangularis ad oculos; in default of a fascia contentiva. 12. The four headed bandage hawk; for cut-off noses. 13. Discrimen in morbis nasi; like the preceding, also in fractures of the nasal bone. 14. Funda; for hare-lip. 15, 16, 17. Capistrum simplex, duplex, funda maxillaris; for fractures and luxations of the lower jaw.

Let us get out of this suffocating dusty rubbish chamber of bandages of a hundred years ago. During this short period of thirty years of strife among the best surgeons, what had become of trephining? From the luxuriantly growing tree fell one twig after the other until a rotten, almost dead trunk remained.

In case of *facial wounds* it was very desirable to avoid a disfiguring scar by means of sticking plaster or a suture. The latter did not readily gain favor, although it had already been highly recommended by F. Wuertz in wounds of the cheek, nose, ear and in hare-lip. Only the skin of the ear and nose were caught in sewing, not the cartilage. Even when the nose was nearly or entirely cut off, agglutination was tried and occasionally with success (Ravaton, Nannoni). In case of failure, an *artificial nose* had to be worn. Tagliacozzi's rhinoplastic (1597) was not understood nor any interest manifested for the same in the eighteenth century, not even by a single surgeon. When the Medical Faculty of Paris put the question, "An curtae nares ex brachio reficiendæ," it was unanimously answered in the negative. The art of the Italians, whose success Heister doubted, was like a ridiculous fairy tale to Dionis. Without having put rhinoplasty to a test, Camper, Richter, Chopart and Desault considered artificial noses of light wood, papier maché, silver or lacquered linen, which were fastened by means of two springs in the nasal cavities behind, preferable to those of flesh and blood. J. Hunter did not comprehend Tagliacozzi's method, for he believed that it concerned the transplanting of skin from one person to another. ("The joining of two parts belonging to different bodies is what Tagliacozzi advised.") Richter also spoke of a piece of skin taken from a stranger engaged for the purpose and thought that such a nose would not be as perfect a substitute as one of wood, which was often hard to detect. In 1794, a Madras paper reported the first new nose which had been grafted by a physician of India the year previous, from the skin of the forehead of a man, whose nose had been cut off as a punishment. Carpue of London, performed the first rhinoplasty in Europe in 1814 by transplantation. (Among the prothetic efforts made the past century, are also worthy of mention, besides the artificial noses and feet, the artificial eyes manufactured out of glass and enamel. The former were worth one florin each, the latter, one guinea. In 1782, there is also mention of an artificial chin which the Parisian mechanician Merklin contrived for a sailor, whose lower jaw had been shot off; he was thereby enabled to again speak distinctly.

The *nasal polypus* was either a flesh or mucous polyp, or a malignant one. B. Bell considered as more important the local nature of the former two, while Richter deemed it more essential whether their origin was due to syphilis and scrofula. In the treatment of the same, there was little that was new; most of the modes had been known in ancient times. The flesh polyp, the most common of all, was generally torn out, that is, more correctly speaking, it was twisted off on account of the bleeding. In consequence many different kinds of forceps were invented. Richter's nippers for polypi, approved by many, could be taken apart at the screw, so that every spoon might be inserted severally. Sharp had notched the ends of his forceps; Garengeot had roughened them with lattice work, to enable him to hold the swelling more easily. The bleeding was stopped by means of ice water, by making a plug of the finger, or by inserting a wad of lint, which was drawn up into the nose after the manner of the Bellocq tube with a catgut; the safest way, though, was to pull out the remaining piece of root. Richter did not favor the ligature; on the other hand he thought much of the hot iron in the form of a trocar, to be used in cases of polypus that bled but little or very freely, and with exhausted patients. The malignant polypus, for many a noli me tangere, he removed as soon as possible, and so contradicted Pott's statement that it was useless to treat many polyps which, although not cancerous, were accompanied with intense pains, continued to grow uninterruptedly, bled when touched, and had greatly grown, presenting a deep red color. The mucous polypus being a prolongation of the Schneiderian membrane, he treated with astringents (ice water, alum, lead), which, when ineffective, were changed for the ligature or incision; relapses were treated with the cautery. For swellings situated far back in a cavity, Theden constructed a special pair of forceps; on the other hand, Manne of Avignon was the first to cut through the palate (1747), an operation which Morand defended. An improvement in the treatment of polyps was brought about by Levret's improved ligature (1749). He taught how to remove polyps which had heretofore been inaccessible, from different cavities of the body with a double cylinder and silver wire. Desault favored this idea and invented a cleft sling fastener, using linen thread in the place of the silver wire, which easily tore, and with it operated on polyps in the nose, ear, uterus and rectum. Levret's method was considered by B. Bell for all polyps the best and easiest kind of treatment and less painful than the operative interference with the forceps. Hereupon Richter declared undisguisedly that he had not as yet been able to tie off a nasal polyp, therefore pulled them out; furthermore, he confessed that he once mistook a swelling for a polyp of the nose and a few months after the operation discovered that the swelling was the result of a fracture of a skull. On the other hand, he tied those polypi in the rectum, in the uterus and in the upper part of the esophagus. In cases of the last kind Bell lowered a wire ligature into the same, in which he tried to catch the swelling. But if this was too low down so that it was too difficult to succeed with the ligature, then he, as well as Richter, advised tracheotomy, "an easy and harmless operation," before tying off the polyp, which could until then lie in the mouth.

There existed a prejudice against operating children with *hare-lip* before they were two years old. Heister opposed this prejudice, because he successfully operated on children six months old, and Roonhuysen, children ten weeks old. The number of successful operations on new-born children increasing, Richter also became convinced that the most appropriate time was soon after birth, especially when com-

bined with a fissure in the roof of the mouth, which would close after the operation of hare-lip (Sharp, Levret, LaFaye). The age from 3 to 10 years he excluded, waiting until the children had become more sensible. All preparatory measures, like the drawing together of the lip by tying, etc., were rejected; on the other hand Desault recommended to clear the head of vermin by combing and application of mercurial ointment as a preliminary to the operation, and thus prevent the later moving of the bandage. When the fissure extended far up into the roof of the mouth, the upper lip with the frenulum was severed. The edges of the cleft were very carefully denuded with as little loss of flesh as possible, very narrow lips being held with a common pair of forceps, instead of the old clumsy nippers. One surgeon would operate with a pair of scissors, another with a knife. With exaggerated importance, Louis defended the latter and contended that the scissors gave more pain and bruised (1768). This was a sort of prefatory gossip to Percy's prize essay on the Scissors (1785), in which it was placed far behind the bistoury. The greatest cry was made in Paris, and Desault, although at first uncertain in his choice on account of Louis' fame, finally decided in favor of the scissors. Also Richter used a dressing scissors and allayed the gossip concerning the use of knife or scissors, or both, with the following words: "Moreover every surgeon may and can select the instrument he thinks the most convenient; both have been used with equally good results." Later Lucas of London, cut off one margin with the knife, the other with the scissors. All educated surgeons used the twisted suture and did away with the interrupted suture, on account of the irritation caused thereby. The apparatus for sewing was improved. Instead of the steel needles which Paré had already used, and which were apt to rust somewhat, silver ones (J. L. Petit) with steel points that could be unscrewed (Sharp, Richter), were employed, and even gold ones (LeDran, Desault). As early as Heister's time and later, a few quacks and wandering operators successfully employed two or three interrupted sutures, which were removed after three to six days. In former years Desault and Chopart preferred the same, but now Ollenroth was about the only one of the surgeons left who clung to the interrupted suture, after having learned how to sew it from the itinerant surgeon Köhring. Now also Pibrac and especially Louis rejected all forms of sutures and joined the wounds by ligatures and court plaster, like P. Franco did long ago. But Louis' success in France was only transient; abroad, he had no followers whatever and was severely criticised by Valentin, who supported the suture by two clasps which kept the lips against each other. The double hare-lip, in the treatment of which La Faye was very successful, was sometimes operated on in one sitting (Heister; Desault, always and usually successful) or within an interval of two weeks. While Richter and others cut away the intermaxillary bone on account of its uselessness, Desault pressed it back with a linen band several days before the operation, and on it joined the margins of the hare-lip. Two singular occurrences are recorded in this connection. One fatal case caused by hemorrhage, which Bichat reported, and one case of spontaneous recovery of hare-lip mentioned by Loder, who says: "The congenital cleft extended to the nostrils, but a thin membrane weakly joined it to the inner side of the lip; in the tenth year the same began to contract without special inducement and finally there was only a narrow white line visible on the outside."

A *cleft palate* was joined, according to Paré's idea, by obturators, that is, with a sponge, to which, on the lower side, a piece of leather or silvered tin was fastened to prevent the admittance of moisture and to furnish a smooth surface for the tongue. Already it was advocated to definitely join the fissures in the palates of children. Therefore Jourdain wished to draw a band through the mouth and fasten the ends to the molars on each side, while Levret advised to compress the cheeks with a bandage. Richter did not share their views and thought of scarification of the bone fissure with the application of balsam ointments, but with children preferred to let nature heal the cleft after the operation, or rather, to insert a sponge. Surgeons were also afraid to venture an operation when the soft palate was cleft. It was likewise closed by a little sponge with a silver plate. There is something pathetic in C. C. von Siebold's remark: "When the mother implored me to help her suffering child, my sympathetic heart desired to make an operation. But sad to say I got no further than my honest wish. If one could only get at the palate with instruments, the joining of the fissure of this part could as easily be accomplished as that of any of the other parts of the body." Twenty-four years after this confession Gräfe made the first staphylorrhaphy (1816.)

Regarding the subject of *dentistry*, Germany was far behind France and England, where excellent and intelligent dentists could be found. In 1728 the Parisian dentist Fauchard created an epoch with his "Chirurgie Dentiste," the first complete scientific work on dentistry published. This work formed the basis for all the succeeding books issued. Among the better-known dentists were Berdmore ("Treatise," 1770) and Spence of London, and especially Jourdain of Paris. One of the most important works relating to dental anatomy as well as surgery was written by J. Hunter ("Natural History of the Human Teeth, Explaining their Structure, Use, Formation, Growth and Diseases," 1771). The pain in a carious tooth began when the air touched the bare nerve. Ever of an inflammatory nature, it was not directly dependent upon caries, but due to secondary caries, a disordered stomach, etc., and was so excruciating because the inflamed portions could not spread nor give like the panaritium. To prevent the advancement of caries by draughts of air, the cavity of the tooth had to be filled with gold or lead, or the decayed tooth was extracted, cleansed by boiling and then replaced, whereupon it again grew fast to the socket. Hunter was particularly successful in this mode of procedure, which he based upon his experiments. Having removed the spur of a cock and replaced it in the bird's crest, it again adhered; the human testicle having been cut out and returned to its place, likewise grew. If a sound tooth was knocked out by an accident, it was at once put back into the socket. Also the teeth taken from cadavers and set again remained intact for many years; they were fastened to a neighbor tooth by a thread. In this connection Littsom, a native of the West Indies who had freed his slaves and thereby lost much of his property, called attention to the transference of syphilis, which he had not observed to be the case when inserting artiffcial teeth (1787). These were constructed from hippopotamus teeth (Nuck, 1714) or of ivory,

and so skilful was the manufacturer that he made whole rows, even entire sets of teeth. When a patient refused to have his decayed tooth extracted the nerve was killed with a heated fine knitting needle or with mineral acids or caustic alkalies. The prejudice that a tooth must not be drawn during pregnancy was disputed by the Vienna dentist Serre. In case of an ulcerated tooth the only remedy was to remove it; but not until the inflammation had subsided so as to prevent its spreading. With painful and difficult eruption of teeth Hunter, as Paré had done, advised the cutting of infants' gums, but it was essential that the knife or lancet pierced through to the tooth, otherwise the operation was useless; the scar did not hinder its exit. The Erlangen professor, Isenflammer, contested this idea and therefore opposed this little operation. B. Bell, who early employed the cross incision, was of Hunter's opinion; also Richter, who had very accurately described the process of teething. Both recommended as a means of cleansing the teeth to rinse the mouth with lukewarm water after each meal, which method had already been advised by the French dentist, Guillemeau, in 1706, and wiping off the teeth with a sponge. Theden thought it necessary to clean the teeth also at night, so as to remove all particles of food. In treating sound teeth Richter discarded all powders, brushes and toothpicks, which ought never to be too pointed, nor made of soft wood, nor of metal, nor be made from quills. Even during his time Guillemeau considered it dangerous for the preservation of the teeth to drink beverages too hot or too cold; on the other hand, he thought well-baked bread, mutton and chicken conducive to good teeth; fought against the use of golden and silver needles as toothpicks and permitted only those of quills. Dirty teeth required the application of powder prepared from cream of tartar, chalk and cinchona, with a brush, used on the lower jaw in an inverted position and *vice versa* on the upper jaw. Tartar was removed with instruments; for filling the teeth zinc was also used, besides lead and gold. Hirsch of Jena advocated the use of tinfoil in 1796. According to Richter, the remedies for toothache depended upon the origin of the same. When inflammatory, caused by caries, leeches and poultices were applied; if rheumatic, tincture of cantharides, cajeput oil, camphor and electricity were prescribed, if caused by a disordered stomach, emetics and cream of tartar; in case the origin was not known, extract of poppy and the above anti-rheumatic remedies were used. The most common instruments for pulling the teeth, which was done toward the side on which the continuation of the socket was the thinnest, were the pelican, the English key and the dental elevator.

The suppuration and the operation for the opening of the *antrum of Highmore* were known. In 1675, Molinetti first opened the antrum directly through the cheek by means of a cross incision and by trephining, while Meibom in 1718 first laid the socket bare by extracting the teeth implicated. To this method Cowper and Drake added that of puncturing the alveolar processes. After the Bremen physician, Runge, had compiled the first work on the diseases of the antrum (1750), the French surgeons, Bordenave, Lamorier and Jourdain, gave their special attention to this operation and published their writings in the fourth volume of the Memoirs of the Académie. Bordenave recommended Meibom's method and extracted preferably the third molar, because its alveolus was the thinnest, therefore, the easiest to perforate. He at once caused a large opening, which he kept from closing by inserting a silver tube. This procedure was opposed by Lamorier, because often a sound tooth had to be sacrificed, and instead trephined above the third molar and below the cheek-bone, the most prominent part of the antrum. Jourdain, however, deemed it useless as a rule to open the antrum in this way; he sought to find the connection with the nose, in order to free the closed passage and through this make his injections. This method was much too difficult and often impossible, consequently of no use. Lastly, Gooch is mentioned, who bored through the hard palate into the antrum, taking for granted that the same had been pushed forward by the pus. Most of the surgeons chose either Meibom's or Lamorier's method. B. Bell employed a curved trocar, in order to make a puncture from the alveolus; Desault opened from the mouth the lower portion of the fossa canina where the bone was the thinnest and where the operation and the after-treatment were most easily accomplished. These punctures and trephinings of the anterior wall are to be considered as the starting-point for the resection of the upper jaw.

In a similar manner was treated the suppuration of the frontal sinus, which Richter saw break through into the skull cavity. Either the anterior wall was trephined or injections were made into the nose as soon as the pus had found its way there, or if the outer wall was already decayed, the too small opening was enlarged, which, however, could remain fistulous for a long time. Bilguer was once very successful in taking a bullet out of the frontal sinus and Maréchal related the case of a wound in which the brain matter was mistaken for the mucus and pus.

(To be continued.)

SOCIETY PROCEEDINGS.

Southern Surgical and Gynecological Association.

Proceedings of the Tenth Annual Meeting, held in St. Louis, Mo., Nov. 9, 10 and 11, 1897.

(Concluded from page 1067.)

FIRST DAY—AFTERNOON SESSION.

Dr. J. G. EARNEST of Atlanta, Ga., reported a case of

EXTRA-UTERINE PREGNANCY OPERATED ON AT THE SEVENTH MONTH.

The patient was 36 years of age, the mother of several children. Patient came under his care September 19, 1897. Five months before he had been called to see her on account of profound collapse which threatened life. A history of irregular uterine hemorrhages was elicited and a diagnosis of ruptured tubal pregnancy on the left side was made. Patient rallied somewhat, but her condition was such that it was feared she would die under the anesthetic if an operation was done. Operation was deferred, and nothing further was heard from her until the date mentioned. At this time the doctor found the abdomen distended by a tumor on the left side and in the center as high as the umbilicus. On the right was another and apparently distinct cyst filling that side of the pelvis and extending well up into the abdomen. The enlarged uterus could be felt in the center merging into a large tumor. Upon opening the abdomen a large tumor occupying the center and left side presented a surface somewhat irregular, very dark in color, and traversed in every direction by large blood vessels that stood out prominently on the surface, reminding the author of an enormous broad ligament cyst. The enlarged uterus was enclosed in this mass, and the shading off of the tissues was so nicely done that it had every appearance of a tumor springing from the uterus. The tumor of the right side was about the size of an adult head, about one-quarter of an inch thick, and seemed to be distinct from the large one, the dividing line dipping down between

them about half the diameter of the tumor. To the larger mass was attached several coils of intestine which were dark and changed in texture at the points of contact. The cyst on the right side peeled out without much hemorrhage. But with the work of peeling off the placenta from the pelvic and abdominal wall began the flow of blood so appalling. Pushing it as rapidly as possible the mass was loosened and iodoform gauze quickly packed in behind it. The cyst was still unbroken and had the appearance when lifted up of being a fibrocystic tumor of the uterus, the uterus following forming the stem from which it sprang. The author concluded to remove the uterus and drain through the vagina. As the uterine arteries could not be reached a wire attached to a serre nœud was thrown around the uterine body, tightened and the mass cut away. The patient was now in such a critical condition that the author abandoned draining through the vagina. He tied the uterine and ovarian arteries, and packed the cavity with iodoform gauze, which was brought out at the lower angle of the wound, and closed the abdomen with silk-worm gut. A large compress of cotton was firmly fastened over the abdomen by a very tight binder and the patient put to bed. Gauze removed on the sixth day. On the eighth day fecal matter passed from the drainage tract. From this time until she left the hospital, October 30, most of her feces passed by the fistula. Five days after she went home he was informed that she was having free rectal evacuations with a corresponding falling off of the discharge from the fistula. If the fistula fails to close spontaneously the patient will return to have it closed by operation.

The large tumor was covered entirely by an enormously expanded placenta beginning in the bottom of the pelvis, firmly attached to the pelvic and a portion of the abdominal wall, its villi reaching well down into the tissues. From the top it was deflected from the abdominal parietes over beyond the center everting the body of the uterus. In the cyst thus formed was found a fetus of about seven months.

Dr. L. MCLANE TIFFANY of Baltimore, read a paper entitled

CYSTIC DISEASE OF THE MAMMÆ.

He said the occurrence of cysts as a confusing element in the course of solid tumors of the breast was not so uncommon and might greatly resemble the subject dealt with in his paper, yet the clinical history and anatomy of cystic adenomata were sufficiently clear and the prognosis sufficiently important to justify careful study. In most cases an accurate diagnosis could be reached before operation. Dr. Tiffany reported eleven cases that showed many symptoms in common.

CYSTIC FIBRO-ADENOMA OF BREAST.

He had examined three of these tumors, and as they agreed so closely both in microscopic and macroscopic appearances, a description of one would answer for all.

Macroscopically the breast is full and hard with numerous small nodules to be felt under the skin but not adherent to it. These nodules vary in size from a pea to a walnut. Some of them feel as though they contain fluid. On cutting through the breast normal glandular tissue is seen to be replaced by a hard, dense white tissue with innumerable cysts containing either glazy sticky fluid or a cheesy material. The fluid varies in color. In some cases it is white and transparent; in others green, red, yellow, or a dirty brown.

Microscopically.—Sections were taken from various parts of the tumor, hardened in a 10 per cent. solution of formalin for twenty-four hours and in alcohol. They were imbedded in colloidin and stained by the ordinary method with hematoxylin and eosin. Under the microscope the sections presented the following appearance; there is a mass of white fibrous tissue including cysts, fat and tubules. The tubules are lined by several rows of cuboidal epithelial cells and are massed in discrete areas presenting somewhat the appearance of an intracanalicular growth. In some localities the tubules are seen to be much dilated in parts, completely filled with cells, while outside they are surrounded by a well marked area of round cell infiltration. Here and there in the tubules are to be seen loose desquamated cells, which are granular and swollen, presenting somewhat the appearance of the cells of sebaceous glands. These cells have very deep staining nuclei, and when seen in the smaller tubules are deeply pigmented, of a brownish color, as though blood stained, and as here and there one can find the remains of red blood corpuscles, this is probably the case. Many of the ducts are lined by papillary ingrowths made up of cylindric cells which take eosin well. The tubules present all stages of dilatation up to large cysts; many of the cysts are lined with several layers of cells resembling pavement epithelium. The fibrous tissue which is too abundant is rather wavy, not very cellular, and well supplied with blood vessels. It stains very faintly with eosin.

The diagnosis of benign cystic fibroadenoma is perfectly clear.

Dr. A. V. L. BROKAW of St. Louis, Mo., made some remarks on

THE X-RAY AND ITS APPLICATION TO SURGERY.

He exhibited two hundred radiographs, and among them was a radiograph of a fractured dislocation of the cervical vertebræ; one showing silver wire *in situ* that was used in wiring the segments of vertebræ together after operation upon this case. Another showed a rubber drainage tube used in a case of empyema. He also exhibited radiographs of the heart, the thorax in its entirety, fractures of the dorso-lumbar vertebræ, the pelvis, several fractures and lesions of the long bones.

In many hundred exposures that he had made, he had yet to see harmful effects following the use of the X ray, such as cutaneous burns, loss of hair and lesions of varying intensity.

SECOND DAY—MORNING SESSION.

Dr. D. F. TALLEY of Birmingham, Ala., read a paper on

CHRONIC PROCTITIS.

The author dealt with two varieties of non-specific chronic proctitis: 1, those cases in which a diffuse, persistent inflammation, superficial ulceration and papillomatous vegetation are the prominent features; 2, those in which the submucous tissues are principally involved in the hypertrophic process, causing a proliferative stenosing proctitis. This latter condition is often engrafted on the first, and both conditions may exist in any case. The main symptoms of the first form of proctitis were dealt with.

In the treatment, rest in the recumbent position was referred to as being of paramount importance in the first form of the disease. The diet should be of a liquid character, bland and nutritious. In most cases it is best to divulse the sphincter muscle when the trouble is low in the rectum. Where there is no ulceration, but a diffuse chronic inflammation, the mucous membrane should be mopped with silver or copper of the strength of 30 grains to the ounce. The after treatment consists in putting the patient to bed, washing the rectum daily with warm boric acid solution and the use of suppositories of iodoform and boric acid. In very chronic cases, where the ulcers are extremely indolent, the solid stick of silver or crystal of copper may be used. In these cases it is necessary to make repeated applications before the ulcers become healthy and begin to heal.

The main feature of the proliferative stenosing proctitis is involvement of the submucous connective tissue in a fibrous hyperplastic process which causes a thickening of the rectal walls and subsequent contraction and stenosis of the rectum.

Dr. HOWARD A. KELLY of Baltimore read a paper on the

SOURCES AND DIAGNOSIS OF PYURIA.

He began by stating that if he were asked what subject in the entire range of medicine and surgery he considered it most important to bring prominently before the profession at present, he would probably reply pyuria. The subject is important on account of the great number of undetermined cases under treatment, and on account of the progressive nature of some forms of the disease, as well as on account of the facility with which the diagnosis can now be made with better means of investigation.

Pyuria, of course, signifies merely the presence of pus in the urine; this may be in large or in small quantities, and may proceed from any part of the urinary tract, from the external urethral orifice up to the cortex of the kidneys.

The investigation of a pyuria is an analytic one, taking the symptom and trying to trace its origin.

The best way to investigate a pyuria is to begin by making an examination of the urinary tract, following an anatomic order proceeding from below upward.

The history of the case, the microscopic and bacteriologic and chemic examinations of the urine must be carefully made, and all facts ascertainable by palpation must be elicited first.

The direct investigation then proceeds in an orderly manner, beginning with the external urethral orifice, where Skene's glands may be distended with a drop or two of pus; the urethra may be in a state of intense inflammation and even ulceration affording sufficient pus to yield a decided sediment in the urine. Sometimes a suburethral abscess may pass unnoticed for many months, in spite of the fact that it contains from a teaspoonful to a tablespoonful of pus.

The vesical sources of pyuria are from a cystitis, including a trigonitis, or inflammation of the trigonum; foreign bodies, creating a cystitis; ulcers, associated with a cystitis or tubercular in their nature.

These affections will all be readily recognized by making a cystoscopic examination of the patient in the knee-breast position through a simple cylindric speculum. By this examination the cystitis will often be found to be well localized and in

patches, which may be readily treated by direct topical applications, upon removing a foreign body, the cause of a cystitis, the pyuria disappears. Ulcers seen through the cystoscope may be treated with strong solutions of nitrate of silver, curetted or cauterized.

There are also a number of extra sources of pyuria, and these arise most frequently from tubal and ovarian abscesses breaking into the bladder, across the base of a broad ligament.

If the pyuria does not come from the lower urinary tract, it must then come from one of the ureters or kidneys; a telltale blush around a ureteral orifice often marks the side from which the pus issues. I have found pyurias from the upper urinary tract proceeding from strictures of the ureter with a gonorrheal, tubercular or other infection. The site of the stricture and the source of the pyuria may be readily located in these cases by passing a ureteral catheter, a metal one for the low strictures, or a flexible one for those above the pelvic brim.

Renal pyurias are after all the commonest, and he finds that these are most frequently caused either by a calculus in the pelvis of the kidney or by a tubercular pyelitis, or by a hydronephrosis which has become infected. Such pyurias are often the occasion of presence of large amounts of pus in the urine, appearing either continuously or intermittently. By passing a renal catheter well up into the pelvis of the kidney the pus may be evacuated and the pelvis washed out. If the pus is too thick to flow through the catheter it may be thinned out by injecting a little fluid.

By making an orderly investigation of this sort the pus is traced to its origin and the source of the disease discovered and treated and the cause eliminated, if possible, just as we would seek to investigate the source of the contamination of a body of water by taking a boat and traveling up the muddy stream until we had located the point at which it entered the main body and until we found that above this point the water was free from contamination. The methods proposed are safe in careful, practiced hands.

Dr. Wm. H. Myers of Fort Wayne, Ind., followed with a paper on

THE EARLY DIAGNOSIS AND TREATMENT OF CANCER OF THE UTERUS,

in which he first dwelt upon the various theories respecting the nature of cancer, the last theory being that the disease was in its origin purely local. If we adopt the view that cancer appears first in a certain locality, and that danger consists in its extension from that locality to remote organs, then we were in a position to advance arguments in support of early diagnosis and treatment. To make an early diagnosis the physician should observe closely and reflect upon the history of the case as detailed by the patient. He should encourage her to accurately describe every symptom, and insist and urge her with all the force which the strongest conviction of a necessity imparts on a local examination. How seldom do physicians have an opportunity of making an early diagnosis! Patients come to physicians after the disease has passed the limitations of surgical aid, their cases regarded as inoperable, so far as a permanent cure may be promised.

Physicians often treat symptoms as trivial, that appear to the patient as unworthy of special notice. For example, an abnormal menstruation, a vaginal discharge, or a trifling hemorrhage, seldom profuse.

The author then dwelt at length upon elements of diagnosis, and gave statistical results following operations by different authors for this disease.

The author considered the value of the microscope as an aid in clinical diagnosis of cancer to have been over estimated, and quoted several high authorities in support of this view.

He closed by saying that the knife had become the emblem of gynecologic treatment. It had supplanted the curette, intra-uterine injections, caustic applications, the quaint conceits of monkish craft, and the brutal records of the cancer cure. The knife had become, in a surgical sense, the specific therapy of this particular disease.

SECOND DAY—AFTERNOON SESSION.

Dr. F. D. Thompson of Fort Worth, Texas, reported

A CASE OF TETANUS FOLLOWING A SURGICAL OPERATION.

The patient, a male, was 21 years of age, American, with good family history. A radical operation for extensive varicocele was performed on him. Asepsis was carried out in every detail in the usual way. The result of the operation was excellent; yet on the morning of the ninth day after operative interference the patient could not open his mouth very well, and there was more or less stiffness about the muscles of the neck. A diagnosis of incipient tetanus was made, and the patient died in less than three days after the first appearance of this disease. Dr. Thompson could not account for the fact how this patient was infected with the bacillus tetani.

At this juncture the President, Dr. George Ben Johnston of Richmond, delivered his address. He selected for his subject

THE PREVALENCE OF SPECIALISM AND WHO SHALL BE SPECIALISTS.

He said the tendency of the times was toward specialism in medicine. The science of medicine had grown to such gigantic proportions that no one mind could any longer thoroughly master every detail of it; hence the necessity for specialism. It was desirable because it gives to the profession and the people the most intelligent consultants and the most skilled attendants the art of medicine could supply. It was therefore not wise to hamper its legitimate growth. It should be regulated, however, and kept within proper bounds so that proper persons shall become specialists. He divided specialists into two kinds, the true and the pseudo-specialist. He defined a true specialist as one specially distinguished for learning and skill in a given pursuit; the false as one having merely a special occupation. He would make very clear the difference between these varieties, for one reached the distinction of a specialist by reason of his training, experience, skill and wisdom, whereas the other was made a specialist by the possession of a diploma, a door plate and a "kit" of special instruments. The profession recognizes the excellence and the value of the one, whilst the other derives his standing from the magic term specialist, which is so ill understood by the public. The professional qualities of the true specialist he likened to a massive pyramid, the finished capstone of which constituted the specialty. This pyramid of experience, learning and skill was a stable edifice, a pillar of strength which could not topple or reel. It was a mark by which all recognized superior design and masterful workmanship. In the case of the pseudo-specialist, this pyramid of learning was inverted. There was no base of a knowledge of detail, of general information, of professional attainments. The structure has no foundation in fact. It began with the specialty and its growth spreads as it ascends, over-shadowing what is below, thus rendering it an unstable, top-heavy structure, which is likely to fall before the winds of uncertainty and doubt.

Proper education, sufficient training, ability and special aptitude mark some men as fit subjects for specialists. These qualities are soon seen by their confrères, who, recognizing superior attainments in given lines, force such men into specialties by consultations and referring special cases to them. The self-constituted specialist needs no such recognition, but depends upon the title of specialist to win him patronage from an over-credulous public.

The public has been improperly educated to the idea of specialism. Specialism means more to the lay mind than to the professional. In the public eye, all specialists stand upon the same footing, possessing all the needful requirements to give the best service. The profession has misled the public. It is responsible for this lack of discrimination on its part.

Lastly, medical colleges should vigorously discourage the practice of recent graduates becoming specialists. Teachers should point out to them the error they are about to commit. They should counsel them. Colleges should recognize only the real specialists. Reform is necessary in the present system of specialism. It must be accomplished through the instrumentality of medical colleges and societies, and when they take the matter properly in hand, the general profession and public will lend cordial support and the evil will perish.

Dr. A. M. Cartledge of Louisville, Ky., read a paper on

OVARIOTOMY IN THE AGED.

The patient upon whom this operation was performed was born Oct. 29, 1816. Eighteen months before Dr. Cartledge saw her, her family noticed an abdominal enlargement, shortly after which she complained of pressure symptoms. Latterly the gastric and digestive disturbances from pressure had been very troublesome. Emaciation and ovarian expression appreciable, but not marked. Examination revealed the abdomen well filled with an encysted growth, which was diagnosticated as ovarian. Naturally the great age of the patient, 80 years, 7 months and 15 days, made the decision as to operation a debatable one. However, an operation was deemed justifiable, urged and consented to, and was performed May 12, 1897. The ovarian cyst originated from the right ovary, was multilocular and weighed about forty pounds with fluid and omentum. Time of operation, fourteen minutes. Patient sat up fourteen days after operation, left the infirmary May 29, or seventeenth day after operation; has recently made three quilts, and is active and happy as a woman of sixty-five.

The author has operated seven times in women over sixty years old.

Dr. H. H. GRANT of Louisville, Ky., contributed a paper on

OPERATIVE TREATMENT FOR ENLARGED PROSTATE,

in which he drew the following conclusions:

1. In malignant diseases any operative step except palliative suprapubic drainage, even if based on an error of diagnosis, is a serious mistake.

2. That in myomas, fibromas and adenomas it is yet uncertain that good results will follow castration; and, furthermore, that such conditions render enucleation by Alexander's method very difficult and perhaps not feasible; hence when interference resists catheterization and is not remedied by the permanent catheter, as suggested by Kane, suprapubic section and removal of the projecting portion, if practicable, or the permanent fistula of McGuire instead, is the wisest course.

3. In conditions including stone in the bladder, suppuration in the gland, and the suspicion of intravesical growth, exploration by the suprapubic method offers the best insight into the nature of the lesion, as well as the most hopeful prospect of relief.

4. Inasmuch as castration is unsatisfactory, and is less acceptable to men under sixty-five years of age than later, it appears that in the commonest form of enlargement, the chronic parenchymatous, to which the operation of Alexander is especially appropriate, will be best treated by this method, provided it appears feasible or necessary after section, which, if it bears out the promise of the present, will surely take a high place in the future, as it has almost no objection, aside from the seeming gravity of the step.

It is to be borne in mind that desperate and long protracted suffering may influence a patient to consent to the mutilation of castration, when after relief regret may tend to grave dissatisfaction, and even melancholy; hence though apparently a less serious and certainly a more easily executed operation than either the Alexander or McGill, it is to be looked on as less appropriate than either, other things being equal, before the sixty-fifth year, and perhaps not to be even suggested when the Alexander method can be applied.

Dr. JAMES A. GOGGANS of Alexander City, Ala., followed with a paper entitled

REMARKS ON EMPYEMA, WITH A REPORT OF TWENTY CASES.

He said that empyema was a disease of much more frequent occurrence than it was generally supposed to be; that two-thirds of the cases were of simple origin and the disease developed as a sequel of pneumonia, and instead of being, as formerly held by Sir Astley Cooper and Dupuytren, always fatal when treated by surgical interference, it had under aseptic management become most amenable to treatment. He classified the mode of evacuating pus from the pleural cavity under two general headings: 1, the closed method, which consisted in evacuating the pus by simple puncture and allowing the puncture to heal at once; 2, the open method, which consisted in making a more or less free incision for the removal of a piece of rib, and the introduction of rubber drainage tubes to maintain perfect evacuation of the fluids to permit of free ingress and egress of air that had passed through an antiseptic dressing. He said that the relative value of these methods could only be determined by statistics. The age of the patient and pathology of the disease present should have much to do with the character of surgical interference. The prognosis was unfavorable in cases where pyemic cocci were found in the pus. When the pus contained streptococci a free incision or Estlander's operation should be done. Simple incision and drainage only were necessary when the pus contained the pneumococcus of Fraenkel. He said that the statistic results in children could not favorably be contrasted with those obtained in adults, and that this was explained by the etiology and pathology of empyema in childhood, in that it was more favorable to recovery than when the disease was developed in adults. Aspiration offered many advantages in the empyema of childhood. The operation was simple and favored lung and thoracic expansion rather than contraction and deformity of the chest walls, and statistics proved that a vast majority of the patients recovered. He gave an analysis of twenty cases, eight of which were under 9 years of age, and twelve between the ages of 17 and 86 years. The first, aged 7 years, was cured after eleven aspirations; the second, aged 8 years, was cured after three aspirations; the third, aged 17 years, cured after one aspiration; the fourth, aged 35 years, cured after two aspirations; the fifth, a man aged 58 years, cured after three aspirations; the sixth, aged 9 years, cured after three aspirations; the seventh, a male aged 86 years, died after three aspirations. The ages of those cured by thoracotomy ranged as follows: Two, 3 years old, two were 4 years old, two 7 years, one 10 years, two 17 years, one 22 years, one 25 years, one 30 years, and one 40 years of age.

In cases where the chest wall was opened by a free incision, or removal of a piece of rib or ribs, he emphasized the necessity of perfect ingress and egress of air, which should be heard at each act of inspiration and expiration. He advised that the fluid removed by any method should be allowed to flow away slowly, since the fluid acted as a wedge and made greater pressure than the atmospheric pressure.

The operations of Estlander and Schede caused more shock and produced greater deformity of the chest, and required general anesthesia, which should be complete. He advised against using washings in the pleural cavity, saying that they were harmful.

THIRD DAY—MORNING SESSION.

Dr. RUFUS B. HALL of Cincinnati, read a paper entitled

IMPROVED TECHNIQUE IN OPERATION FOR INTRALIGAMENTOUS CYST.

After reviewing the literature on the subject, the Doctor said he believes the mortality from operation for intraligamentous cyst is much higher than the statistics would lead one to believe. A large per cent. of the deaths are due to hemorrhage, either on the table or within a few hours after they are put to bed. He thought the operation he proposed would save many lives, as it was practically a bloodless one. It is applicable to those cases where the adhesions are very firm and the cyst can not be easily stripped from the pelvic floor.

The operation is as follows: First tap the cyst and empty it. Ligate the ovarian artery on the tumor side at the pelvic border; ligate the ovarian artery on the opposite side, outside the healthy ovary. Divide the broad ligament. Divide the peritoneum above the top of the bladder and push the bladder down. Ligate the uterine artery on the healthy side. Cut across the cervix and clamp or ligate the uterine artery on the tumor side. The blood supply is then cut off and the patient has not lost a drachm of blood. The capsule of the tumor can now be divided above the top of the bladder and at a suitable point behind, and the tumor enucleated from below upward with very much greater ease than from above downward, and with corresponding safety to the ureter, the rectum and the iliac vessels. Close the peritoneum over the pelvic floor with a running suture of catgut. This method brings every part of the field of operation into view. The ureter can be seen, recognized and pushed aside. The adhesions are separated along the line of cleavage instead of against it as in the old method.

Then followed the presentation of a specimen and report of a case illustrating the operation and the class of cases to which it is especially applicable.

Dr. H. TUHOLSKE of St. Louis, Mo., read a lengthy and exhaustive paper entitled "Personal Observations in Abdominal Surgery."

Dr. GEORGE J. ENGELMANN of Boston, presented a paper on

SYMPHYSEOTOMY AS COMPARED WITH OTHER OBSTETRIC OPERATIONS,

and illustrated his remarks by diagramatic sketches. Symphyseotomy was not as attractive an operation as is Cesarean section or the Porro operation, yet it was very successful as compared with Cesarean section. It was a successful all-around operation for the city and country. The mortality statistics of the different operations were given and compared. There has been no trouble in union of the pubic bone after symphyseotomy. Quite a number of women have been delivered by a second symphyseotomy and it has been found that while the pubic bone was slightly separated, it was nevertheless firmly united with connective tissue. There was no trouble in the locomotion of women so operated upon. A number of cases are also reported of normal labors having followed symphyseotomy. The first operation in this country was performed by Dr. Williams of Dennison, Texas. Dr. Englemann showed what had been accomplished by symphyseotomy and said that surgeons must be guided in a measure by that. It required good judgment on part of the surgeon to decide what operation to do in cases of contracted or deformed pelves.

Dr. JOHN D. S. DAVIS of Birmingham, Ala., followed with remarks on "Plaster of Paris as a Universal Fracture Dressing." He finds that less than 3 per cent. of the physicians who use plaster of paris as a primary dressing, cut the plaster at the time of applying it. The object of incising the plaster of paris was to allow it to yield and at the same time fit the contour of the limb. For fractures of the shaft of the humerus, as elsewhere, he thinks plaster of paris is the best dressing.

American Public Health Association.

Twenty-fifth Annual Session Held in Philadelphia, Oct. 26-29, 1897, at the Hotel Walton.

(*Continued from page 1071.*)

METHODS OF MEAT INSPECTION

were considered by Prof. LEONARD PIERSON, V. D. M., Veterinary Department of the University of Pennsylvania. The existing systems in this country may be divided into two classes, national and local. For some years, the U. S. Bureau of Animal Industry has conducted a constantly improving meat inspection service that now extends to animals killed for export and for interstate trade in the principal meat-packing centers of the country. The work is performed by veterinarians, who examine all carcasses, stamp those that are sound and condemn those that are unfit for food. There is also a microscopic examination of pork for the detection of trichinæ, but this extends only to the products prepared for export. Some of the cities in the United States have also organized more or less complete meat inspection systems. The system in New Orleans, originated and developed principally by Dr. A. S. Wheeler, is perhaps as perfect as exists anywhere in the United States. It provides that all animals killed locally for food shall be inspected and the meat stamped. Moreover, all dressed meat brought into the city must be stamped in a similar way. It is unlawful for any butcher to sell meat that does not bear the stamp of the meat inspector. In Montgomery all meat producing animals are killed in a central slaughter house under the supervision of a meat inspector. These systems and all those followed in European countries place the responsibility of deciding whether a given carcass is suitable for food upon an inspector who is trained in animal pathology. In some cities, as Philadelphia, the meat inspection system is based upon an entirely different system. There are laws prohibiting the sale of diseased or unwholesome meat, and it is assumed that the butcher is always competent to determine this point. Under this system detectives or police officers are appointed to visit slaughter houses, markets and butcher shops, hunt for diseased meat which is condemned by a veterinary adviser called in by them, and the seller is often prosecuted. It is scarcely necessary to say that this system is undesirable, because it does not include an inspection of all meat sold, and inevitably permits the consumption of much that is injurious, and because it assumes knowledge on the part of the butcher that he can not possibly possess, and makes him responsible for conditions that he can not recognize.

The system is therefore incomplete and as a permanent system is unjust. Its chief advantage lies in the fact that it tends to make butchers more careful, so that gross pathologic conditions do not reach their stalls and a portion of the diseased meat that would otherwise be placed upon the market is barred. However, such a system constitutes a beginning in the right direction, but no municipality should be satisfied with it if a better can be obtained. Municipal meat inspection is of more importance in the East than in the West because tuberculosis is more prevalent in this region and a great many worn out dairy cows are sent to the shambles. Many of these cattle are afflicted with tuberculosis and other diseases. They are frequently emaciated and constitute the most dangerous class of beef animals. Philadelphia is situated in the midst of a bountiful dairy region and is a large consumer of these animals. They are not killed in a large central abbatoir, under constant supervision, but in numerous little slaughter houses scattered throughout the city and its suburbs. There are about one hundred such places in Philadelphia. Many of them are quite small, situated on back streets and surrounded by stables and dwellings. In these establishments cattle are frequently killed at night or very early in the morning and are not inspected at all. Occasionally, and as often as possible, the inspector drops in while the carcasses are being dressed, and his vigilance is often rewarded almost daily by the discovery of a diseased and dangerous animal. The business of these slaughter houses is conducted so irregularly, that it is not possible to properly control them without having almost as many meat inspectors as slaughter houses and if the force were enlarged to these dimensions the sanitary conditions and the surroundings of the slaughter houses would still be such as to injure the wholesomeness and keeping qualities of the meat dressed in them. A further reason for a better system of meat inspection here is that there is a constant and growing demand for many parts of carcasses which are more frequently diseased than the flesh and were formerly thrown away. Our ever increasing foreign population consumes viscera for which there was no market a few years ago, and meat inspectors frequently find that such organs are diseased to such an extent that renders them unwholsome, while the rest of the carcass can be safely sold. As a result of the fact that inspectors are not constantly present a great many diseased carcasses are unquestionably sold and frequently without the knowledge of the butcher who handles them. His training is not sufficient to enable him to detect symptoms and lesions. In some cases, however, he does detect them and remove them so thoroughly that the suspicions of the meat inspector are not aroused. The conditions that prevail in Philadelphia are not unique. They exist in almost every city of the country and it is largely on account of the multiplicity of the slaughter houses that thorough systems of meat inspection have not been more generally established. An adequate control of the meat supply of Philadelphia can not be enforced without a great extension of the present force or a concentration of the business of slaughtering. The latter plan is supported by the experience of the older civilized countries, and is to be recommended not only because it would facilitate the inspection of meat, but for several other reasons as well. It would do away with all of the small, poorly equipped, badly managed slaughter houses which are in many cases nuisances in their respective neighborhoods. It would make it unnecessary to drive cattle through the streets, a practice that blocks traffic, frightens people, and at times occasions serious accidents. It would give small butchers the advantage enjoyed by wholesalers; they could use the facilities of the large slaughter house which are immeasurably superior to their individual establishment, and the cold storage system could be used by all with economy to the dealer, and advantage and increased wholesomeness of the meat to the consumer. The offal and the condemned organs and carcasses could be disposed of to better advantage. Local meat would gain in reputation if such a system were enforced, and trade could be built up on its merits, and competition with western meat would be less difficult.

Dr. E. P. LACHAPELLE, President of the Provincial Board of Health of Quebec presented the report of the Committee on Transportation of Diseased Tissues by Mail. He gave in detail the plan agreed upon with the U. S. Postal Authorities by which such specimens might be carried in the mail and the danger of the transmission of disease be positively prevented.

Dr. EDWARD JACKSON, Professor in the Polyclinic of Philadelphia read a paper on "Eye Strain from poor Window Glass." He called attention to the influence of inequalities of thickness and irregularities in the index of refraction in window glass. Such defects necessarily cause the same eye strain when the glass is looked through as would be occasioned by regular or irregular astigmatism. The damage done is much more serious because the amount and kind of astigmatism so produced varies with every movement of the eye or objects looked at. Plate glass alone is of sufficiently uniform thickness to avoid any lens effect; but may present such inequalities of the index of refraction as to produce greater distortion of the rays passing through it, this distortion being greater in proportion as the glass is thicker. It was particularly urged that eye strain from this cause was an essential factor in car sickness, and that public conveyances should be freed from this source of annoyance. While some luxuries are harmful good window glass is one that is altogether beneficial in its effects.

Dr. ROBERT L. PITFIELD, Assistant Bacteriologist to the State Board of Health of Pennsylvania, read a paper on the "Official Control of Plants Yielding Biologic Products, particularly Vaccine Virus."

REPORT OF THE COMMITTEE ON THE NOMENCLATURE OF DISEASES AND FORMS OF STATISTICS

was made by Dr. CRESSY L. WILBUR, Registrar of Vital Statistics, Michigan.

Your Committee desires first of all to express its sincere regret that the multiplicity of other duties has made compulsory the resignation of the former able chairman, Dr. Samuel W. Abbott of Massachusetts, and to hope that his experienced counsel will still be available, so far as his other engagements may permit, in the service of this Committee while discharging its duties to the Association. The principal recommendations of this report, it may be said at the outset, especially those relating to the adoption of a standard system of nomenclature, are made possible by the labors of this Committee under Dr. Abbott's direction in recent years.

The time has come when it would seem desirable that this Association should pronounce definitely in favor of a standard classification of causes of death for use in the compilation of statistical reports. The Bertillon system, reported to the International Statistical Institute at Chicago in 1893, seems to have better prospects of general adoption at this time by regis-

trars generally in the three countries represented in this Association than any other, and therefore this committee submits as its chief recommendation for action by the Association at the present session that the Bertillon classification be declared the choice of the American Public Health Association.

The classification was printed in full in Vol. xx of *Public Health*, so that it is unnecessary to discuss it in detail at this time. It has already been put into practical use by the governments of Mexico and of the Province of Quebec in their reports, and several States of the United States will undoubtedly accept it when indorsed by the Association. Among those ready for the immediate adoption of a modern nomenclature are Massachusetts, Michigan, Ohio and Vermont, while all of the States included in the New England Registrars' Association will, it is hoped, conform. Besides the long classification printed in the volume of *Public Health* referred to above, there is a shorter and intermediate classification, each comparable with the longer one, so that the needs of the cities and of monthly reports from States, requiring less statistical detail, are fully provided for. It is especially desirable that the municipal reports adopt the same classification as those used by the State systems, and it is very fortunate that, owing largely to the efforts of Dr. Heckard, Registrar of Vital Statistics of Chicago, we have a large attendance of municipal registrars at this meeting of the Association for the purpose of obtaining greater uniformity in classification. It is not maintained that the Bertillon system is entirely perfect, nor that it may not properly be subject to revision after a reasonable time. It is believed, however, that its adoption in its present condition will afford a working basis of uniformity and lead to general improvement along the best lines. Much energy is dissipated and many valuable suggestions come to naught from the utter absence of co ordination. Working together, with a broad basis of agreement, many improvements will be made by the associated registrars and come into general use that would not be possible if each State and city continue its development along individual lines. One of the principal advantages to be derived from the general adoption of the same formal classification of causes of death will be the possibility of reaching a better agreement on the inclusion of the terms employed, as related to the original returns. It is obvious that in even the most extended classifications in ordinary use there is considerable condensation, or "consolidation," as the term is technically employed, from the statements made in the certificates of death. This is well known to all who have been engaged in practical registration work, but is less obvious to physicians and others accustomed to accept implicitly the statistics as finally printed in the reports. Sometimes considerable discrepancies may arise from varying methods of compilation, and the necessity of a uniform code of rules for compilation can only be met by associated action.

Among the practical questions to be settled in connection with the adoption of a standard classification is the treatment of still-births. They are not included in the Bertillon classification as used in France, nor is it generally customary to state them among causes of death in the English classification. Nevertheless, both Quebec and Mexico, in their adoption of the Bertillon system, have so far changed it as to include still-births in the regular list of causes of death, thus rendering a correction necessary before comparison with the standard form of the classification. It is recommended that still births be separately stated from other deaths and that, in case it is considered necessary to include them in the classification, they be stated in connection with total deaths, so that errors from inclusion or non-inclusion of the same can be avoided in comparing reports of different countries. Premature births, living an appreciable time after birth, are not still births and are contained in No. 138 of the list, "Congenital debility, jaundice and sclerema." Here also may be placed deaths of infants occurring a few days (less than three) after birth without assigned cause of death, whose inclusion under a separate caption was proposed at the last meeting of this Association. It will entirely defeat the object of the adoption of a uniform classification if each registration office introduces its peculiar modifications of the original classification.

Probably the most efficient method of carrying out the purpose of this Association, should it authorize an effort at this time to secure practical uniformity in the classification of causes of death, is the preparation of a circular containing the three alternative systems of classification presented by Dr. Bertillon to the Statistical Institute, with the recommendations of this Committee and this Association and the endorsement of as many State and municipal registrars as may be able immediately to promise the adoption of the system in their work; this circular should be distributed among the registrars of the three countries. A set of working rules to secure uniformity in the practical work of compilation should accompany the same. It would be very gratifying if this proposed action should lead to a fuller representation of the official registrars at the annual meetings of this Association, with perhaps a formal organization for the discussion of questions of vital statistics and the settlement of practical details of registration. They might well meet as a section of the general body.

Leaving the matter of classification and nomenclature of causes of death, this Committee urges that steps be taken to secure the adoption of efficient systems of registration of vital statistics in those States that do not possess them at present, and especially in those populous and wealthy States that are well able to maintain efficient systems at present but do not do so. Among these States is Pennsylvania, and we sincerely trust that it may not be accounted discourtesy toward our courteous host if we emphasize this fact. It is not due to lack of interest, nor want of well directed efforts by Dr. Lee and his fellow-workers upon the Pennsylvania State Board of Health, who well appreciate how useful an efficient modern system of mortality statistics would be in their work of restricting disease. Pennsylvania should not lag behind New York and other progressive States in this respect, and if the earnest recommendation of this Association of sanitary workers, assembled within her borders from the farthest bounds of the three nations for the promotion of the public health, will be of any avail with her legislative body in causing it to take speedy action for the establishment of a satisfactory modern system of registration of vital statistics, such advice should be given freely and with unsparing reference to the condition of present neglect.

There are many States wherein efficient registration of deaths will be impossible for many years to come on account of the great sparseness of population. The sanitary authorities in such States should not be deprived of the benefit of reliable vital statistics, so far as the general government can reasonably undertake to supply the want. At every United States census since 1850 vital statistics have been collected for such States in this country, but the results under the discredited method of enumeration, have been imperfect and even misleading in many cases. It is possible to obtain accurate vital statistics of representative areas in all the non registration States of this country, which, while not wholly exhaustive, will be invaluable for many important sanitary and sociologic uses. The collection of useful vital statistics by the United States census necessarily implies a permanent organization, such data requiring continuous collection from year to year. This Committee earnestly recommends that the Association exert its influence for the passage of a law by the approaching session of Congress to provide for a permanent census organization, and as an especially important feature of such a law, having a direct bearing upon successful public health work, to provide for the continuous collection of vital statistics in representative areas of non-registration States during intercensal years. Under the head of form of statistics, it may be said that the adoption of a standard classification of causes of death as recommended in the preceding part of this report, will pave the way for many reforms of value in our methods of presenting vital data. It is especially urged that greater attention be paid to establishing a suitable basis of population in the statement of death rates from the common infectious diseases, such as diphtheria, scarlet fever and others, whose chief incidence is upon a special age class of the population. Rates as a rule should be based only upon susceptible population. Similar precautions are necessary in the statement of death rates from all causes, a difficulty which the system of mortality indices devised by Korosi and adopted by the International Statistical Institute, has been employed to obviate. It is not expedient to enter into the discussion of these subjects in the present report, whose chief object has been to suggest measures whereby the general condition of the collection of vital statistics could be improved and data of fundamental importance be rendered comparable. Greater exactness and refinement of methods will properly come later on.

"On How to Practice Isolation from the Contagious Diseases" was read by Dr. J. E. MONJARAS, Director of Health of the State of San Luis Potosi, Mexico.

In the evening the members were entertained at a banquet tendered by the City of Philadelphia.

(To be continued.)

WRITE TO US for a copy of Department of Public Health Bill.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

Per Annum, in Advance $5.00
Foreign Postage 1.75
Single Copies . . . . . 10 Cents.

In requesting change of address, give *old* as well as new location. Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 61 Market Street (Occidental Buildings), Chicago, Illinois.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, 100 Washington St., Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the *Editor*, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 61 Market Street (Occidental Buildings), Chicago.

Original communications are only received with the understanding that they are exclusively contributed to this JOURNAL.

SATURDAY, NOVEMBER 27, 1897.

CONGENITAL TUBERCULOSIS.

The question of the transmissibility of tuberculosis is one of great interest and importance. Before the discoveries of VILLEMIN and KOCH tuberculosis was regarded as a hereditary and constitutional disease due to a morbid condition of the tissues which was inherited from the parents. When it became established that tuberculosis is caused by a bacillus, the common occurrence of the disease in the members of the same family was generally explained on the score of the exposure to the inhalation of dried and pulverized tuberculous sputum. Others, however, would explain the many instances of tuberculosis among the children of tuberculous parents as due, in part at any rate, to a certain predisposition to the disease, the bacilli finding a favorable soil for their growth; these children are born, as PETER says, "tuberculisables, mais non tuberculeux." What this disposition really depends on is not known, but it has been thought to be due to the chemical nature of the tissues and fluids of the organism.

Inherited, or more properly congenital, tuberculosis may also have another mode of genesis—the tubercle bacilli may become lodged in or introduced into the tissues of the child before it is born. There are now so many unquestioned examples of this form of transmission that no one any longer denies its occurrence; but while the majority of the writers regard it as so exceptional and rare that it can not lay claim to any practical importance there are also those, as, for instance, BAUMGARTEN, who claim that tuberculosis is oftenest spread by means of prenatal infection, and their number is increasing.

The bacilli may be assumed to pass from the parents to the child either as the result of a germinative infection, which occurs at the time of fecundation, so that the embryo is tuberculous from its very beginning, or as the result of a placental or intra-uterine infection. In the case of germinative infection the bacilli might be assumed to be present in the unimpregnated ovum, or this may become infected on the way to the uterus, or the bacilli may be brought into the ovum with the impregnating spermatozoon. There exists, however, no reliable instance of conceptional infection. A few authors are inclined to urge the occurrence of infection through the spermatozoa. JANI[1] found bacilli in the testes of five out of eight phthisical persons without urogenital tuberculosis, sometimes in the interior of the seminal tubes and in some cases also in the prostate. SEMB,[2] SPANO[3] and BUGGE[4] have corroborated such findings, but WALTHER[5] obtained negative results in nine cases. GÄRTNER'S[6] well-known experiments speak against transmission by the father. He injected bacilli into the testicles of male guinea pigs and produced genital tuberculosis; seventy-four young pigs born of healthy mothers impregnated by the tuberculous males remained free from tuberculosis, while some of the female pigs—mothers—became infected. This part of the problem is therefore still open for discussion.

On the other hand, there are definite demonstrations at hand of congenital tuberculosis of placental origin. GÄTHER injected bacilli into the circulation of pregnant rabbits, and of fifty-one young rabbits five became infected; of nine mice injected with bacilli into the trachea seven brought forth tuberculous young. Here in this last set of experiments the conditions present in human pulmonary tuberculosis were as closely reproduced as feasible by experiment. The conditions necessary for transgression of bacilli in the maternal circulation to the fetal are but little known. In all cases of unquestioned congenital tuberculosis in the human the mother appears to have died soon after the birth of the child of phthisis. LEHMANN[7] in two cases found tubercles in the placenta. SCHMORL and KOCKEL[8] report three cases of placental tuberculosis. Two of the mothers died of miliary tuberculosis; the third of chronic pulmonary and laryngeal tuberculosis. In these three cases there were tubercles in the placenta, partly in the intervillous spaces, partly in the stroma of the villi. There were bacilli in the lumina of the fetal placental vessels. While a direct entrance of bacilli into the circulation of the fetus was thus demonstrated the author succeeded in finding bacilli in the liver and in a lymph node in the hepato-duodenal ligament of only one child. Inocu-

[1] Virchow's Archiv, cliii.
[2] Klinish Aarbog, 1886.
[3] Revue de la Tuberculose, 1893.
[4] Heiberg's Festskrift, 1895.
[5] Ziegler's Beiträge.
[6] Zeitschrift f. Hygien u. Infektionskrankheiten, xiii.
[7] Berliner klin. Wochenschrift, 1894. [8] Ziegler's Beiträge, xvi.

lation experiments gave negative results in all these cases. KOCKEL and LUNGUITZ[9] found tuberculosis in the maternal and fetal parts of the placenta of pregnant tuberculous cows and lymphatic and hepatic tuberculous foci in the embryos. Further reports of placental tuberculosis are not at hand as yet.

The cases of human congenital tuberculosis are slowly increasing year for year. In one group tuberculous lesions are demonstrable at birth, in another group bacilli are found in the fetal organs. In many other cases bacilli have been sought for in vain. Thus CHARRIN, MERKEL, LANDARZY and MARTIN, ARMAUN, BIRCH-HIRSCHFELD and SCHMORL, AVIRAGNET, JACOBI, SARWEY, LONDE, LEHMANN,[10] BUGGE[11] himself and the authors already mentioned, have described cases of more or less definitely demonstrated congenital tuberculosis. As to animals, BANG,[12] the well known Danish veterinarian, has found congenital tuberculosis in 13 calves. The first case of proven congenital tuberculosis is the widely known bovine case of JOHNE from 1885. While the number of instances of congenital tuberculosis is yet small it has been inferred that the transmission through the placenta of bacilli in the latter part of pregnancy occurs much more frequently than actually susceptible of demonstration and that they may remain latent in a lymph gland, a small lung or bone focus for many years. BAUMGARTEN and his followers urge this view and that the conditions are similar to those of tardy congenital syphilis. This view is in a measure supported by certain recent statistics which show that tuberculosis is more frequent in infancy than in any other period of life.[13] Some of these statistics show that the tuberculosis is found most often in the peribronchial lymph nodes and the lungs, a fact which is difficult of explanation on the score of congenital infection pointing as it does to infection by inhalation. The champions of the congenital infection claim that the bacilli may circulate in the blood for quite a long time and become deposited finally in certain particularly favorable places, of which the lymphatic structures is regarded as one. Certain experiments with inoculated bacilli also point in this direction. On the whole it must be stated that the possibility of congenital infection with tubercle bacilli is becoming more and more widely recognized. At the congress for tuberculosis in Paris 1893, numerous and important arguments and facts in favor of congenital tuberculosis were brought forward. The frequent primary bone and joint tuberculoses in infancy are hard to account for by the theory of the doctrine of predisposition as long as there is no demonstration of any changes at the places of ordinary invasion from without.

From this fragmentary discussion of congenital tuberculosis it may be gathered that the question is yet an open one and that there is a decided tendency toward, as well as considerable ground for, the belief that congenital infection, especially through the placenta, is of more common occurrence than generally believed.

[9] Ziegler's Beiträge, xvi.
[10] All quoted by Bugge, loc. cit. [11] Loc. cit.
[12] Reisz. Tuberkulosens Udbredelse og dens Helbredelighed 1894.
[13] Carlsen quoted by Reisz, loc. cit. Heller quoted by Bugge, loc. cit.

THE ALLEGED DECREASE IN THE NATIVE AMERICAN POPULATION.

Every little while we read in the secular or other publications, what may be called jeremiads on the extinction of the native American stock, especially in the New England States. These are generally based upon reported statistics or analyses of reports of State boards of health, and to some extent upon pessimistic utterances of physicians who use the facts to point an argument against certain evil practices that they claim are too prevalent in that and other sections of our country. The author of a recently published series of lectures on medical jurisprudence with a strong sectarian bias uses these alleged facts, as it were, as a direct charge against a certain portion of the population whom he practically accuses of practicing criminal abortion as well as of other less flagrant immoralities.

The most recent authoritative statistics bearing upon the points in question are those contained in the twenty-eighth report of the Massachusetts State Board of Health, which are thus interpreted by the public press as bearing witness to the extinction of the native New England stock. They show that during the past forty years, from 1856 to 1896, the natural increase of population was only 463,419, or an average of something over eleven thousand a year, and that this birth rate was ever increasing amongst the foreign born. The decrease of native fecundity and the greater vigor and longevity of the foreign born and their children are held to inevitably point to the gradual extinction of the native American families in that State.

There is little doubt but that there is a certain degree of truth in this deduction and that neo-Malthusian practices are more general in that and other sections than is to be desired for the good of the country generally. This however is more or less the case in all civilized countries where general moderate thrift is the rule and it may be more so in some parts of New England than elsewhere. It is doubtful, however, whether any one who has had the opportunity to observe would claim that they are exclusively confined to the native stock; the division between the fecund and the comparatively sterile is drawn on economic more than racial lines, there as elsewhere, as is shown by the signification of the term "proletariat" in all parts of the civilized globe. Late marriages, urban rather than country life, the gradual selection of the most vigorous by emigration, and a forced celibacy of a larger

or smaller proportion of the female population ought all to be counted in calculations as to the causes of the phenomenon, instead of attributing it in a wholesale way to objectionable or criminal practices. And when we talk of the extinction of the New England stock we utterly ignore the fact that New England has furnished many times its own population to that of the newer sections of our country. Each generation of New Englanders sees its most energetic and active members migrate to the West, and the wonder is, not that the race should decrease in its original seat, but that it should continue to furnish, as it does, a steady supply of superior emigrants to all parts of the country and even to foreign lands. The native Yankee in his original New England home is still strongly in evidence in all matters of local or National importance, and however neurotic or degenerate some of them may be in some particulars, or sterile as compared with the foreign immigrant proletarian, there is hardly any sufficient reason to justify the belief that their extinction is at hand. Even were this probable, the New England blood is flowing in the veins of millions of Americans, a fact that certainly ought not to be left out of consideration; the partial transplanting of a race is not extinguishing it, and there is probably little danger of this even in its original soil. The original agricultural population of New England may perhaps largely disappear or be replaced by immigration from another region, but there will always be a leading element in that section that can trace its descent from the first settlers and which will mold the new comers to conform to a greater or less extent to the original type. At all events, however much we may regret that apparent comparative sterility of one of the best native stocks, we are not yet warranted in believing that it is in imminent danger of immediate extinction.

There is so much said upon this subject and almost exclusively from the pessimistic point of view in both medical and lay journals, that it is worth while occasionally to point out that bad as things may be, they hardly justify the extreme statements and deductions that are so often made. It is a misfortune if it is a fact that population is in even a static condition as regards one of its more desirable elements in any section of our country, but that does not justify intemperance of statement in regard to it. Taking the country as a whole it is questionable whether even the more moderate statements are correct.

INFLUENCE OF ENVIRONMENT ON MEDICAL MEN.

This subject has lately come into some prominence by the publication of the Smithsonian Lectures on "Environment in Civilization." The great difference of highly educated medical men in manners, habits of thought and personality, have always been the subject of comment and inquiry. At our ASSOCIATION meetings from year to year these facts come out prominently, and ideal writers and authors are disillusionized and appear very different from previous conceptions. On one occasion, a noted man exhibited a wild fit of coarse passion; another was childishly stupid from spirits; and another was repulsive in his personal appearance. How far these personal differences are due to environment is often asked. Two men come from college equally polished and trained; years after one is a coarse egotist, the other a feeble, shrinking, doubtful man. One man becomes coarse in language and manners, another simpering and childish. One man reads a paper before the Section, and because it fails to attract attention, believes that he is the victim of prejudice. Another man who reads the paper of a rival in the JOURNAL, becomes angry and doubts the judgment and honesty of the editor. This list might be extended almost indefinitely, and is explained by environment and constitutional differences. This environment is both physical and mental. The physical is climate, hardship, struggle to secure a place and position in society and professional work. The mental is society, the people who surround him, and the thought atmosphere about him. Many medical men are able to form and keep up a mental environment about them; others are dependent on the men and women they come in contact with, and draw from this source mental stimulus and force. In this way many medical men reflect the coarseness and ignorance of the community and people they associate with; others exhibit opposite traits. In a certain city the medical men of half a century have been in constant conflict, and their weakness has come down, infecting every new class of physicians who settle in that place. This has given a distinct personality to physicians of that city, who are controversial, critical and intolerant. Many of these physicians, in a different atmosphere, would have been mild, quiet men. In another city the medical men vary widely in both personality and scientific attainments.

While it is clear to every one that the power of environment both shapes and makes the progress of individuals in all communities, it is not recognized in its influence over medical men and their work. Our ASSOCIATION meetings are admirable places to study these forces. Supercilious critics who sneer at these so-called great "mob gatherings," have no conception of the tremendous educational power which every meeting has on the personality of the men who attend. The narrow environments expand and disappear; the sordid egotism and pessimism is checked; the timid shrinking from intellectual contact is overcome. The one finds that his boasted power is feeble compared with others, and the other is roused to find that he is able to judge and compare his own opinions favorably. The man with coarse language and manners growing out of his environment, receives an impres-

sion of his weakness which is startling. The combative physician discovers the folly of personal conflict over points which the leaders discuss so placidly, and join in hearty friendships after. There can be no doubt that American medicine depends very largely on the AMERICAN MEDICAL ASSOCIATION meetings. The larger these meetings are, and the more widely they are held in different parts of the country, the greater and more beneficent their influence on the general profession. Each man in the profession needs a change of environment; he needs some standard of comparison by which he can estimate his own vantage-ground. The teacher with his admiring crowds of students, the specialist, the country practitioner and the village doctor, are all subject to the laws of environment, and reflect the mental and physical world they live in. They show this in every public gathering and in every ASSOCIATION meeting, and whether they take part or not, are immeasurably benefited by the contact with others who pursue the same calling in different fields. They take home a new dignity and new and wider conceptions of medicine in its best sense. The critics may decide that scientific medicine is not much advanced by these meetings, but this is a narrow view. The gain psychically appears later. Medicine is seen to be something more than diagnosis and therapeutics, and its daily drudgery more than the struggle to obtain a living. Each individual life will appear, from these contacts in National gatherings, larger and less bound down by the environments of home and home influences. The last meeting at Philadelphia should be the beginning of a larger field of medicine in America. The coming meeting at Denver should bring out two thousand physicians and more, each one of whom will go home better fitted to make his environments assist him to higher professional and social ranges of life and living. We are all subject to environments, but to make these environments help and not detract is the province of wisdom. The intense personalities, petty weaknesses and defects of our lives, require therapeutic study and treatment, and one of the great specific remedies is to cultivate a larger and more intimate acquaintance with the profession in both the local and National societies. In this way environments can be made helpful, and we can use what is now so often an obstacle.

THE DIXON CASE AND EXPERT FEES.

The Supreme Court decision in the Illinois case of Dr. DIXON furnishes one of the many instances where Supreme Courts support the dignity of inferior courts at the expense of general principles of law by deciding on an inferior point in such a way as to settle temporarily a general principle unconnected with the inferior issue. The DIXON case turned on two elements; in one, Dr. DIXON was a fact witness and could be compelled to testify without compensation as such witness. He was asked his opinion, which a pettifogger might easily regard, under the circumstances, as the opinion of an non-expert and treat accordingly. Had Dr. DIXON declined to testify at all, a clear case of expert opinion would have been made out. It is exceedingly doubtful whether even in its excessive desire to preserve the sacred right of government by injunction, the Supreme Court would then have dared to have set itself against the trend of decisions in most of the English speaking countries, notoriously in Great Britain itself.

With the exception of Alabama and Tennessee, the decisions of the Supreme Courts of the various States have, in the absence of a code, been opposed to the taking of property in the shape of expert knowledge without compensation. While Indiana was working under the common law its Supreme Court held that the expert witness must be paid; a position which since its adoption of a code is no longer tenable, as the code makes explicit provision for the case. In Illinois the courts, except where limited by statute, work under the common law. The trend of decisions in Illinois has been to the effect that where a physician has testified to the facts, he can be compelled to give his opinion without promise of further compensation than that of an ordinary witness. This rule is based (according to the position held in Wright vs. The People, 112 Illinois 540) on the principle that the physician's opinion is that derived from his original relation of physician to his patient and hence a non-expert matter. This position indicates the desirability of separating fact and opinion witnesses, not merely because of the question of compensation alone but because, as has been previously pointed out by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the ends of forensic science can thus be better secured. The great difficulties in expert testimony have arisen from the confusion of fact and opinion witnesses. Of necessity under this confusion, the experts are able to secure one side of the case alone and hence apparent contradictions result, due to imperfect data. The introduction of the hypothetical case, free from any facts observed by the expert to whom it is put, would at once specifically limit the expert to expert functions and secure opinions which would really represent the judicial position of the expert. The expert would undoubtedly give contradictory opinions on different hypothetical cases, but this would enable the jury to see clearly the strength of the positions of the opposed parties. It could by deciding which hypothetical case represented the evidence most truly, avail itself of expert skill in a way most scientific and judicial. Furthermore, from the standpoint of the interest of the physician, the hypothetical case would prevent the confiscation of expert skill by judicial jugglery,

since even the most case-hardened stickler for court dignity would hardly dare to compel a medical man to testify on a mere hypothetical case.

The enactment of a statute such as was presented some years back by the united medical societies of Chicago, would undoubtedly settle the case beyond judicial jugglery. This statute provided for the selection of experts, not for each case, but at the beginning of the year, from whom the city attorney, State's attorney and corporation counsels were to draw in any case, to whom the facts in evidence on both sides were to be presented in hypothetical form while cross-examination was to be limited to these hypothetical questions. No interference could be made with a constitutional right of the individual of calling his own witness. Had the statute been enacted it would have guarded against expert evils on the side of the State, the side where they are greatest and the side which exacts most with least compensation. It would have destroyed the power of an irresponsible county board to use an expert fund as a means of patronage, as has been done by more than one state's attorney of his own accord and at the dictation of the county board whence he draws his funds. It would also have established a precedent for expert compensation, which would have settled the question in Illinois. The physician has an easy redress against private individuals in the matter of expert evidence, but he has none against judges armed with the contempt of court dodge and replete with power to legislate by the great writ of injunction.

The problem before the profession of Illinois is therefore a double one on the expert compensation question. The first thing to be done is the passage of a statute along the lines mentioned. The second is to secure a proper test case on pure opinion evidence and carry this to the United States Supreme Court if necessary. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has repeatedly urged action along these lines. The DIXON case adds special emphasis to its warning that special organization for political power of the physicians as physicians is needed.

CORRESPONDENCE.

Asiatic Plague and Cholera Centers.

ESCHENZ, CANTON THURGAU, SWITZERLAND, Oct. 26, 1897.

To the Editor:—My second letter on the above subject has been unavoidably delayed while rusticating on the shores of the Swiss lakes and among the Alps, emulating the goat in mountain-climbing and other praiseworthy pursuits. Of my observations and experiences at European health resorts, I shall write at length on some future occasion. I must now get back to Mesopotamian epidemics and Turkish quarantines.

On May 28, 1893, cholera was reported to have broken out in Bassorah and among the Bedouin tribes of Lower Mesopotamia. A quarantine was forthwith established about half way between Bagdad and Bassorah, with a military cordon extending from the Persian frontier to the Euphrates; but in spite of government vigilance and red tape, a battalion of comma bacilli advanced boldly up stream, passed the guards unchallenged, and then attacked a town on the bank of the Tigris just above the quarantine station. Quarantine officers and comma bacilli now began a race, alternately gaining on each other, until the latter finally entered Bagdad unobserved and in advance of the former, making their presence known in the "City of Peace" on August 24. The quarantine station was now removed to some distance above the city, and communication with the Persian gulf region was re-established. Never shall I forget the rejoicing of fifteen hundred Bagdad Jews who had been on a pilgrimage to Ezra's tomb, when they learned cholera had invaded their homes; jubilant they entered the city after nearly three months of enforced exile, which but for the Arabs of the desert would also have been three months of enforced fasting. Shouts of joy rent the air, as the steamer approached, shrill dissonant trills from a thousand throats drowning for a time the sound of mourners' doleful dirges sung to frantic time-beating on naked breasts. Except forbidding the sale of watermelons nothing was done to stay the ravages of the epidemic; and when one morning some sixty or seventy cuffahs (round boats built of basketwork and covered with bitumen) loaded with melons came down the river and a couple of hundred soldiers were sent to empty their contents into the middle of the stream, some two thousand Arabs swam out, gathered in the spoils, and sat down on the river bank filling their bellies with the forbidden fruit. Whenever I looked out of the window, my eye dwelt on an enlivening, security-inspiring scene.

Within my range of vision was the U. S. Consulate and the health offices. The space between the two being filled with donkeys and men and their excrements. Near by and up stream a row of water-carriers were filling their skins from the river, and just above them a row of men defecating on the river bank, while above the latter was a row of men washing clothes soiled with cholera dejecta. A wall projected into the river below and near the water-carriers, admirably adapted to arrest all floating bodies coming down stream near the shore, and here dead sheep, camels, dogs, solid excrements, etc., were floating. Further up stream a bridge crossed the Tigris and from this are emptied the privy contents from mosques along the bank.

Truly an invigorating sight! Jews and Christians fled to the deserts as soon as the first cholera bulletin was issued; but the Mohammedans remained, hoping *inshallah*—"if God willed it"—that the death angel would pass them by, and, if not, satisfied that fleeing would not save them. The epidemic raged furiously for about four weeks, but lingered on until toward the end of November, typhoid fever and diphtheria following in its wake. One peculiarity of this epidemic was the unusually high child mortality. The fatality of epidemics in Turkey can only be guessed at, and not even approximately, as the number of deaths recorded bears no relation whatever to the actual number. Many deaths are concealed by surreptitious burial in cellars; only comparatively few of the total number are reported, and from those reported the daily mortality bulletins are boiled down by the Wâlé and health officer in secret council.

Early in 1893 the U. S. Treasury Department and Hospital Marine Service seem to have had a severe paroxysm of epidemiphobia, and a number of laws and regulations, some no doubt wise and some otherwise, were framed and sent out to confound consular and quarantine officers, lead merchants and shippers into temptation to conceal, deceive and prevaricate, perhaps even to bribe the local health officer into outright lying, or attempt to induce U. S. Consuls to inspect America-bound ships through the bottom of champagne glasses heavily gold-framed (the most convenient official spectacles invented)

and finally, failing to accomplish this, to bring influence and pressure to bear on the Department itself, forcing it to break its own regulations. Dark and slippery the ways of the burrowing offshoots from the root of all evil, and tighter their grasp than that of the arms of the octopus!

Early in 1894, the Sublime Porte decreed that cholera must not be permitted to enter Bagdad that year; hence it happened that an epidemic of some mysterious malady, clinically indistinguishable from the epidemic of the previous year or the national epidemic of Bengal, received no official recognition; but this slight did not pass unrevenged, as one of the clerks in the health office was made to feel the invader's grip and gripe. Foolish doctors and undertakers whispered among themselves the name of the tabooed guest, and an honest but indiscreet physician in Bassorah came near being mobbed for daring to pronounce it above breath.

There are three very holy cities in this region, where good Shiah Mohammedans choose to be buried, and thus it happens that some eight or ten thousand defunct immigrants, some of whom have already been dead two or three years, pass annually through Bagdad on the way to their final resting place. The coffins being leaky, putrid cadaveric liquid pours out through the seams and drops on the road to there dry and scent the dust. Thus one smells the approach of a funeral caravan with its three or four hundred corpses for miles to leeward. They come mostly from Persia and bring also with them great loads of the finest Persian carpets and rugs. From Bagdad these rugs, which have perhaps for twenty or more years been exposed in inconceivably filthy homes to the contagion of every known disease germ and other abominations, are now shipped to Europe and America to henceforth adorn the parlors of the rich and undermine the health and shorten the lives of their children. Let the quarantine authorities take due notice thereof and govern themselves accordingly.

Every spring the rapid melting of the snow in Armenia and Kurdistan, causing the rivers to swell and overflow their banks, gives rise to devastating floods, sometimes of long duration, and followed by epidemics of malignant miasmatic fevers, dysentery, etc., and often by an outburst of the plague. The most destructive inundation of this century occurred in 1831, when 7,000 houses fell in one night, in Bagdad, burying the inhabitants under the crumbled masses of brick. Two-thirds of the population died that summer of the plague. In 1849 there was another great flood, and the city was decimated by fever. Early in the spring of 1894 the the Tigris rose suddenly, twenty-six feet, and converted the desert into an immense ocean with an average depth of from ten to twelve feet and a clear horizon all around, except for a little island here and there marking the sites of buried ruins. The walls of Bagdad strengthened by earthworks and matting, and the houses skirting the river banks kept the streets, though considerably below water level, fairly dry; but the cellars were mostly flooded. Fishing from parlor windows was among the idle sports in this lazy fishermen's paradise. Verily, I could say with Jeremiah: "The sea is come up upon Babylon; she is covered with the multitude of the waters thereof."

As the waters subsided, a rank and luxuriant vegetation sprang up, soon again to wither and dry, pools of stagnant water, greenish, semigelatinous, ammoniacal from decomposing animal and vegetable matter, charging the atmosphere with their poisonous effluvia. The fellahin along the river banks, as also the Arabs of the desert, sickened and died by the hundreds. Wandering from hut to hut and from tent to tent I put into each fever-parched patient's mouth an orthodox Texas river bottom congestive-chill powder consisting of forty grains of quinin and twenty grains each of calomel and Dover's powder, which they washed down with muddy Tigris water. Dysentery patients were made to swallow forty grains of ipecac, and under this treatment those who did not die got well, *Hakim Balois'* fame spread wide and far, and procured me the freedom of the desert, which soon again regained its usual salubrity. The pure dry desert air is, even though fiery hot as the blast from a furnace, invigorating, except when southwesterly winds blow, and then everyone feels sick and depressed. I have reason to believe that there is little if any tuberculosis in the desert; not so, however, in the cities. In Bagdad it is given as second in frequency among the causes of death; and if one could believe the vital statistics of Bagdad, it is the healthiest city the world has ever seen or ever will see; for the fiscal year ended Feb. 28, 1892 only 385 deaths were reported, and the population being in my opinion rather above than under 200,000, this would give a death rate of less than 2 per mille ! ! ! The following year 2,042 deaths were reported which would increase the death rate to a little over 10 per mille, probably less than one fourth the actual number. There were 705 deaths recorded as caused by cholera; but the health officer himself admitted that this did not represent one half the actual number. Had he said they represented one fourth the actual number, he would at least have been that much nearer the truth. The child mortality is very high, but few deaths in childhood are recorded, not being considered of sufficient importance to take any cognizance of.

The military statistics, which we may assume to be fairly correct, furnish, perhaps data upon which to roughly estimate the death rate. The army of Mesopotamia numbered in 1892 about 6,000 men, presumably between the ages of 20 and 35, when the mortality in a healthy country should not exceed 7 or at most 8 per mille and be less than half, perhaps nearer one third the death rate of the whole population. But there were 2,855 admissions into hospitals, with 191 deaths, a mortality of 32 per mille of the total force. I do not think the medical examination of recruits is at all thorough, so they are hardly to be regarded as selected risks from a life insurance point of view, nor are they better fed, housed or cared for than civilians; yet I think it fair to assume that the general mortality is at least twice that of the army. This would then in healthy years, when there are no epidemics, fix it at 64 per mille.

Of the causes of death in the army during said year, dysentery headed the list with 81; typhoid fever came next with 36, enteritis 20, tuberculosis 18, pneumonia 7, cerebral disease 6, heart disease 3, other causes one or two each, among these abscess of the liver 1, while two admitted into the hospital from this cause were discharged cured. It is worthy of note that there was not a single case of alcoholism and but 573 (95.5 per mille) venereal cases admitted.

In my next I shall tell some of my experiences in "The Home of Cholera" (Bengal) during 1877–79.

JOHN C. SUNDBERG.

A Case of Acute Coryza.

CHICAGO, Nov. 10, 1897.

To the Editor:—Recently I had the opportunity to examine, two days after the onset of an attack of acute coryza, the secretion from the nasal mucous membrane and found a fission fungus present in large numbers.

The patient, some 30 years of age, had had an attack annually, usually in the fall, ever since a boy. Sometimes he would escape an attack for a year, or instead of its occurring in the fall it would come on in the early summer, and in one instance it occurred in the spring. The first intimation of an approaching illness would be a feeling of lassitude, a disinclination to exertion; in twenty-four hours the symptoms would be fully developed and the patient would know he was going to be laid up with a fever for a week. At this time there would be great fulness of the head, throbbing temples and high fever, 102, 103, 104 degrees F., with dizziness and marked prostra-

tion. The pituitary membrane, at first hot and dry, would soon be covered by a thin mattery secretion which later on would gradually change to a copious mucopurulent discharge, very annoying and very persisent. These symptoms would contiuue from three to seven days, when the fever would gradually subside, the dizziness and the feeling of fulness in the head would disappear and convalescence be fully established. In one or two weeks from time of onset recovery would be complete, except that the discharge from the nose would persist very much the same as during the acute attack, being of about the same consistency but less in quantity.

At first this condition would continue for a few months and then the discharge would disappear, but with repeated attacks. The interval of freedom from this annoying symptom grew shorter and finally the discharge persisted from one attack to another throughout the year.

Rarely was there freedom from the recurring annual attacks until seven years ago, when the hypertrophied mucous membrane was partially removed by means of the electro-cautery, and since then until the present he has enjoyed entire freedom from attack.

At the time I placed the first specimen under the microscope, Oct. 28, 1897, the secretion was not very abundant, and was the only symptom complained of except that during some part of the day, usually late in the afternoon, there was a strange feeling of numbness at the root of the nose, which seemed to the patient to portend an approaching illness.

After this one, a number of other specimens were examined, but no bacilli were found except a very few; close search would show perhaps two or four in the entire field, and no new symptoms developed.

On the evening of November 2, however, he complained of feeling quite ill. There was considerable fever, headache, slight dizziness, and the whole chain of symptoms that had so often ushered in an attack of catarrhal fever, so that he was convinced his old trouble had come back again. I resolved on heroic treatment and irrigated the pituitary membrane with a liter of 1 to 4,000 bichlorid solution. By following immediately with Casselberry's spray for catarrh, the irritation resulting from the douche was reduced to a minimum, and the treatment followed by the happiest results.

The next morning the patient was surprised to find his fever gone and he was feeling comparatively well. By the continued use of milder antiseptics the attack was completely aborted and after recovery the amount of discharge was almost *nil*.

The douching with the bichlorid solution brought away a large amount of a whitish, albuminous semi-fluid mass, that floated on the surface of the water, and the formed elements were found to consist largely of desquamated epithelium interspersed with bacilli and their spores. The latter were large and luminous, not having taken the stain, and the bacilli containing them were very active, moving rapidly across the field. The spores developed in the end of a bacillus and formed by far the larger part of it. The bacilli containing no spores possessed a slight motion. This last specimen did not contain nearly so many bacilli as the first, but there were a goodly number present.

I feel no hesitancy in ascribing the cause of the attack to the presence of this bacillus, and attribute the abortion of the attack to the suppression of the same micro-organism.

The bacillus closely resembles the bacillus subtilis and may be identical with it, but I could not say positively without further research.

I do not regard it too much to assume that this bacillus, which is some form of fission-fungus, was the exciting cause of the attack of acute coryza, nor do I consider it chimeric to assume that these repeated attacks were probably caused by the same micro-organism and that it was this frequent repetition that finally resulted in a typical case of chronic hypertrophic rhinitis.

H. G. GRAHAM, M.D.

264 S. Halsted St.

The Late Leprosy Congress.

NEW YORK, Nov. 15, 1897.

To the Editor:—I took great pleasure in reading your editorial in the JOURNAL of November 13, "The Late Leprosy Congress," but allow me to say that there are points on which I believe you are not quite accurate, which, in the absence so far of complete report, is natural enough. You must allow me to call your attention to the following points:

You say: "The general tone of the convention, judging from the utterances as given in the press, was opposed to the excitement of any general alarm on the part of the public as to the possible dangers from this disease, at least as far as the principal civilized countries are concerned."

I read in the extract given by Dr. Max Joseph, in the *Berliner Wochenschrift*, the following: "The Minister of Worship, Dr. Bosse declared the statement that the Prussian administration takes the greatest interest in the conference, as the frontiers of Prussia have already been crossed by leprosy, and as leprosy no longer can be considered us a dead disease. On the contrary, the district of Memel is to be considered as infected. Besides the surveillance of the frontier traffic, he said the most important measure taken is the sequestration of the diseased in special hospitals to be built shortly. In the district of Memel a leprosry for the shelter and nursing of eighteen patients is being built (there have been thirty-four cases in Memel). The plans are ready, etc."

Says the *British Medical Journal*, "Professor Neumann of Vienna called attention to the fact (in the Berlin conference) that the Austro-Hungarian Government is awaiting the result of the deliberations before instituting administrative measures against leprosy of which 133 cases have occurred within seven years in Bosnia and Herzogovina. . . . The object of the congress is exclusively to formulate conclusions which may be made the basis for administrative measures to be taken by the various governments for combating the propagation of this disease and staying its ravages. These may ultimately be followed by an international convention against leprosy."

The *Wochenschrift* gives this detail: "Dr. Dehio of Dorpat, Russia, reported that the number of the lepers had, in forty years, increased from 300 to 600, and that there nothing was to be done but to isolate the patients."

The following conclusions of Hansen were adopted by the Congress:

1. In all countries in which leprosy exists focus-wise or in greater extension, isolation is the best means to prevent the spread of the disease.

2. A system of obligatory report of the cases, of surveillance, and of isolation, like that which is in force in Norway, is to be recommended to all nations with automatous commissions, and a sufficient number of physicians.

3. It must be left to the legal authorities to determine, after hearing the sanitary authorities, the closer prescriptions which must be adapted to the social circumstances.

It must be borne in mind that, if this conference was called at all, it was for that precise reason, that leprosy was felt and known to be increasing in civilized communities in which isolation had not been as yet adopted.

I have no doubt, when the complete report of the transactions is published, you will find that the majority of the conference has not at all so sanguine and non-alarming opinion as you seem to imply. I can assure you that if my proposition of a permanent international committee was rejected, it was not because it did not seem warranted by the greatness of the danger. As Hansen wrote me some time ago that the intention of the conference would be to promulgate principles to be adopted by every government and that afterward, these having failed, an international treaty may still be proposed and obtained. Unna wrote me only last month, strongly favoring international delegates. Neumann of Vienna, and Max Joseph

of Berlin, have published articles strongly favoring international measures.

One thing is perfectly sure: The position taken by the members of the New York County Medical Society's Committee and the New York Board of Health, that the disease is not contagious in this climate, and that consequently isolation is a supererogatory and purely alarmed affair, is untenable. There seems to be a heroic effort made, to solve the question, *How not to do it?*

ALBERT S. ASHMEAD, M.D.

Typhoid Fever.

SHAFTSBURG, MICH., Nov. 15, 1897.

To the Editor:—My experience with the Woodbridge treatment of typhoid fever leads me to these conclusions: The treatment will abort the fever as claimed, but it does not leave the patient immune. I certainly have on different occasions, noticed that fact. Immunity is secured, it would seem, only by the full and complete saturation of the system by the toxins (or whatever else you may call it) as in the old treatment, which allowed the fever to run for weeks. But the old methods are by no means safe. The greater safety is in aborting it. While there is this one drawback, immunity not secured, Dr. Woodbridge has enabled us to speak with confidence as to our prognosis. This treatment enables us to give more latitude to the diet and makes feeding much easier. In a country practice this is very desirable.

G. W. CHROUCH, M.D.

Carbolic Acid Poisoning.

CHICAGO, Nov. 18, 1897.

To the Editor:—The frequency with which carbolic acid poisoning is met with, either accidental or intentional, leads me to call the attention of the profession to the use of atropin, as suggested by Bartholow, in this condition.

I have had four cases, one that of a boy two years and four months old drinking about one and one-half ounces of pure carbolic acid, who was brought to me in a state of coma, breathing four or five times a minute, with no pulse, the surface cold and clammy. I resorted at once to artificial respiration, and injected hypodermically one-fiftieth grain of atropin to increase the respiration and pulse rate, and introduced the stomach pump, using warm water and lime water in proportion. By this time the child's breathing became more vigorous, and he was somewhat conscious, and I then gave a dose of magnesium sulphate and ordered the continuance of small doses of the same, which I believe does more than produce catharsis in this condition.

Another case was a boy five years of age who drank about a tablespoonful. The third case was a lady thirty-three years of age who swallowed two ounces of carbolic acid. The fourth case was a young man twenty-eight years of age who mixed one ounce of the acid in beer. The two last named cases were attempts at suicide. All made a favorable recovery.

The hypodermic injections of atropin can be repeated, however, in smaller doses, if the stupor continues or the patient shows a tendency to collapse again within two hours after the first injection, as I believe that it is a better stimulant, both respiratory and circulatory, than any other in these cases. The use of the catheter is not to be omitted.

Yours truly, EDW. E. KOLAR, M.D.

Surgeons of the Merchant Marine.

HILLTIP FARM, GROVELAND, MASS., Nov. 15, 1897.

To the Editor:—I am very much interested in noticing in this week's JOURNAL an item concerning "Ships' Doctors." Our medical journals in this country, as well as in Europe, have of late given this matter considerable attention, and the betterment of the service is steadily going on. This is one of the main objects of the International League of Surgeons of the Merchant Marine. For those of your readers who are not familiar with this organization, I will state that its objects are:

1. To increase the efficiency of the medical service on the ocean liners.

2. To encourage the surgeons to respect their positions and to prevent unworthy applicants from receiving employment.

3. To provide information on professional subjects relating to sea service with a view to lessen the difficulties of recently appointed medical officers.

4. To collect a history of the members for publication.

5. To publish a volume of records which shall be of value to those interested.

6. To furnish a list of medical officers of the merchant marine serving at sea throughout the world.

Membership.—Any past or present surgeon of the merchant marine in good professional standing, is eligible to membership. The enrollment fee shall be $1. For further information address the Secretary for the United States Division.

W. THORNTON PARKER, M.D.

Woman's Medical Mission, Ceylon.

22 CIRCUIT ST., ROXBURY, MASS., Nov. 15, 1897.

To the Editor:—In connection with the Woman's Medical Mission in Jaffna, Ceylon, there is an opening for a lady doctor to be the associate of Dr. Isabella Curr, who went to Ceylon last year.

The five large new buildings of the Woman's Medical Mission, viz., the Mission House, the Nurses Training School, the Medical and Surgical Wards, and the Dispensary, together with the necessary outbuildings, are completed and ready for use. The wards provide accommodation for forty in-patients. The training school will accommodate eighteen nurses and a matron.

Rev. T. B. Scott, M.D., and Mrs. T. B. Scott, M.D., who are in charge of the General Medical Mission near by, will act as consulting physicians.

A population of 300,000 people in this province is accessible. The climate is healthful. The outlook for the work is promising. Ten families of American and British missionaries reside in the province. There are 3,000 native Christian members of mission churches, and 15,000 children and youths in mission schools.

As the training of educated Christian young women as nurses will be an important feature of the work, we are desirous of finding, to fill this vacancy, a medical lady who has had a nurse's training, or one who would be willing, before going out, to take some special instruction in nursing. She should be possessed of a true missionary spirit.

We would be glad to hear from any one who is fully qualified or who is about to graduate the coming spring.

Yours truly, MARY AND MARGARET W. LEITCH.

The Tonic for Alcoholics.

TRENTON, N.J., Nov. 18, 1897.

To the Editor:—Replying to the query of Dr. W. K. Curtis, (*vide* JOURNAL of November 13), I would say that the tonic used in all the cure establishments is:

	c.c.
Fl. ext. coca	
Fl. ext. gentian	
Fl. ext. black haw	(āā ʒ ij) āā 64
Dilute alcohol q. s.	O j 250

Sig. F. ʒ j every four hours in warm water.

This is the tonic. Ipecac added to this will produce nausea, and is tasteless. The more ipecac the more nausea. This will in time disgust a patient and produce a dislike for liquor. The ipecac is added after drinking, without the knowledge of the patient. A hypodermic of apomorphia, one-tenth grain, a

short time after drinking, will produce excessive vomiting. The patient must not know the cause of the vomiting. These things can be worked in the tonic without arousing the patient's suspicion; thus the trick of these institutions. The hypodermic is used when a tonic is given hypodermically, on some pretext, after drinking.

Yours fraternally, H. G. NORTON, M.D.

Medical Laws of the State of Washington.

SEATTLE, WASH., Nov. 10, 1897.

To the Editor:—I am in receipt of many inquiries concerning the medical laws of the State of Washington. I would say that all persons intending to practice medicine or surgery in the State of Washington are obliged to pass an examination before the State Board of Medical Examiners.

These examinations are held the first Tuesday in January and the first Tuesday in July. The January meeting is held on the west side of the Cascade mountains and the July meeting on the east side.

No temporary certificates are granted by this Board, and no exception is made to this rule.

F. H. COE., Sec. Med. Soc. State of Washington.

Correction.

NEW YORK, Nov. 8, 1897.

To the Editor:—Please publish the following errata: JOURNAL of Nov. 6, 1897, p. 972, second column, lines 21 and 22, for "medium" please read *median*; line 32, for "them" read *thon*; line 43, for "per os" read *per orem*. I am anxious to have the word *thon* come into general use, as it is needed very much. Yours truly, E. CUTTER, M.D.

BOOK NOTICES.

Text-book of Nervous Diseases. By CHARLES L. DANA, A.M., M.D., New York. Fourth revised edition. One volume, octavo, pp. 640. Profusely illustrated. Muslin, $3.50 net. New York: William Wood and Company. 1897.

This edition of the book has been given a very complete revision, and some parts of it have been entirely rewritten. Says the author: "Those who have the pleasure of knowing him personally and his conscientious work will accept his statement as they would his bond." A chapter has been added on alcoholic meningitis, a very necessary addition, and one that should appeal especially to those connected with ambulance service everywhere. Such additions have been made to the therapeutics as the experience of the author has seemed to him to warrant.

The author says: "The number of nervous diseases has not lessened as the years have rolled by, but their grouping and relations are better understood, and the essential unity of many groups has been made more distinct. Those who read the present volume will perhaps be somewhat disturbed at first by the new nomenclature, which has so much to say about neurons, dendrites and neuraxons. These have come to stay, that is, anatomically, and the modern student must become familiar with them. I have to confess, however, that our conception of the neuron has aided us more in our anatomic work than in our pathology. A practical application of the neuron to disease has not yet furnished us very much help."

A Text-book of Special Pathological Anatomy. By ERNEST ZIEGLER. Translated by Donald MacAllister, M.D., M.A., and Henry W. Cattell, M.D. Sections 9 to 15. New York and London: The Macmillan Company. 1897.

These sections containing the work as heretofore noticed in the JOURNAL are devoted to the pathology of the liver and pancreas, the respiratory system, the urinary organs, the genital system and the eye and ear.

The paging of the work is continuous with the preceding one and brings it down to 1221 pages. It is expected that this volume will be followed with a volume on general pathology in due course.

No words of ours are needed in commendation of this magnificent work, without which the library of no pathologist would be complete.

The style of the translation and the arrangement of the topics resembles the volume of D. J. Hamilton, but the volumes are richer in illustration. At the end of each chapter there is a very full list of references to the literature of the subject treated.

Hare's Practical Diagnosis. The Use of Symptoms in the Diagnosis of Disease. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Laureate of the Medical Society of London, of the Royal Academy in Belgium, etc. New (2d) and revised edition. In one octavo volume of 598 pages with 201 engravings and 13 full-page colored plates. Cloth, $4.75. Philadelphia: Lea Brothers and Co., Publishers.

In our review of the first edition of this book (see JOURNAL, Sept. 26, 1896, page 718), we made the following statement:

"We have here a work in which semeiology, the visible symptoms with which we are confronted, is made to tell the story of the patient's pathologic condition, the natural or Hippocratic method. The work is profusely illustrated and the illustrations are fine. The title of the volume is not a misnomer in this instance, for it is indeed a practical diagnosis. An excellent index concludes the volume."

There seems to be few changes from the former edition and we have little to add to what we then said.

Clinical Diagnosis. The Bacteriological, Chemical and Microscopical Evidences of Disease. By Dr. RUDOLPH V. JAKSCH. Translated from the fourth German edition and enlarged by JAMES CAGNEY, M.A., M.D. Third edition, with numerous illustrations, partly in colors. Pages, 523: price, $6. London: Charles Griffin & Co., Limited. 1897.

This is the third English edition of Professor v. Jaksch's work, which has been largely rewritten and reconstructed. There is no work on the subject more authoritative than this and there are few, if any, more comprehensive of the essentials. Even the most minute are found here and to the practical worker no better guide to clinical diagnosis can be had. The day has gone by when much is left to chance in the matter of diagnosis, as by examination of excrementitious matters, the blood, the urine, histologically and bacteriologically, exact conditions may be understood.

This work is divided into ten chapters, of which Chapter 1 is on the blood; 2, the buccal secretion; 3, the nasal secretion; 4, the sputum; 5, gastric juice; 6, the feces; 7, examination of the urine; 8, exudations, transudations and cystic fluids; 9, secretions of the genital organs, including mammary secretion: 10, methods of bacteriologic research.

Simon's Clinical Diagnosis. New (2d) edition, revised and enlarged. A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. For students, hospital physicians and practitioners. By CHARLES E. SIMON, M.D., late Assistant Resident Physician Johns Hopkins Hospital, Baltimore. In one very handsome octavo volume of 530 pages, with 135 engravings and 14 full page colored plates. Cloth, $3.50.

The present edition of the volume has been brought thoroughly up to date. The parasitology and bacteriology of the blood, saliva, feces, urine and vaginal discharges have been written. New methods of clinical examination, which have appeared since the publication of the first edition, have been included in the work. Numerous additions have been made and the size of the volume increased about fifty pages. The illustrations are excellent and include a number of handsome chromolithographs. The publishers have apparently spared no pains to make the work complete and valuable. The rapid exhaustion of the first edition, published in 1896, indicates the favorable reception of the progress of the work.

Cutaneous Medicine. A Systematic Treatise on the Diseases of the Skin. By LOUIS A. DUHRING, M.D. Part II., Classification of Anemias, Hyperemias and Inflammations. Illustrated. Philadelphia and London: J. B. Lippincott Company, 1898. Pages 494.

The second part of this work, the first part of which we noticed favorably in the JOURNAL, is devoted to classification and the diseases following under the head of anemias, hyperemias and inflammations. After a brief history of the classification of the diseases of the skin down to recent periods, the author gives his reasons for preferring his own classification to those in use, which he gives at some length. Dermatologists will add this work to their libraries with great pleasure, and as it contains the most recent literature, besides embodying the author's vast experience, it is a distinct and valuable contribution to American medical literature, and from this standpoint the general practitioner as well will be interested in the work. The illustrations are good and the references throughout the text with the current literature are exhaustive.

Pathological Technique. A Practical Manual for the Pathologic Laboratory. By FRANK BURR MALLORY, A.M., M.D., and JAMES HOMER WRIGHT, A.M., M.D., with 105 illustrations. Philadelphia: W. B. Saunders, 1897. Pages 397. Price $2.50 net.

This book is destined for practical use in pathologic laboratories, both as a guide to beginners and as a reference for the advanced. It will also meet the wants of practitioners who have more or less opportunity to do general pathologic work. The book is divided into three parts, of which the first is devoted to postmortem examinations, external and internal examinations of the body. Part 2 to bacteriologic examinations, the apparatus, culture media, examinations at autopsies, methods of studying bacteria in cultures, bacteriologic diagnosis and clinical bacteriology. Part 3 is devoted to histologic methods. We regard this as one of the most complete works on the subject recently issued and one which should be in the library of every physician who hopes to keep pace with the great advances made in pathology.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Volume XII, "Mental Diseases, Childhood and Old Age." New York: William Wood & Co. Pages 948. 1897.

The contributors to Volume xii are J. Boy-Teisser, D.C.L., M.D., Marseilles; J. F. Blanford, M.D., London; Jules Comby, M.D., Paris; C. Lombroso, M.D., Turin, and Paul A. Sollier, M.D., Paris. This volume opens with a carefully prepared paper by Dr. Blanford which occupies the first 254 pages. This is followed by Sollier's article on idiocy, which has been assigned 100 pages, and a shorter article by Lombroso on criminal anthropology. J. Boy-Teisser writes on old age, and the remainder of the volume is taken up by Dr. Comby on diseases of children. No higher authorities can be found in Europe on the respective subjects treated of in this volume than the respective authors. It is a work of supererogation for the reviewer to commend what has been written by experts in the truest sense.

A Treatise on Gynecology, Medical and Surgical. By Dr. S. POZZI of Paris. Third revised edition. Translated by Dr. BROOKS H. WELLS of New York. One volume of 950 pages, royal octavo, illustrated by over 600 wood engavings. Muslin, $5.50 net; leather, $6.50 net. New York: William Wood & Co. 1897.

This edition is an exact translation of the third French edition, and as the work has been translated into German, English, Spanish, Italian and Russian and has received the prize of the Institute of the Academy of Medicine of Paris, it is almost beyond the province of the reviewer, and additional interest will attach to the work of Pozzi since his trip to America, where he was entertained royally by the surgical craft generally and particularly by those surgeons whose practice is limited to gynecology. Few changes have been made in the work since the last edition, but they are such as to bring the volume down to date and within the compass of a single volume. The gynecologist who follows the instructions of Pozzi closely will make no mistake.

Lectures on the Action of Medicines, Being a Course of Lectures on Pharmacology and Therapeutics, delivered at St. Bartholomew's Hospital during the summer session of 1896. By T. LAUDER BRUNTON, M.D., D.Sc., LL.D., F.R.S. New York and London, Macmillan Co., 1897, and Chicago, A. C. McClurg & Co. Price $4, pp. 673.

Anything written by Dr. Lauder Brunton is always received with pleasure, and these lectures are no exception to the rule. They are entertaining as well as instructive, and one will rarely commence reading one of the lectures without finishing it. The scope of the lectures is fully covered by the title, that is, on the action of ordinary medicines.

Outlines of Anatomy. A Guide to the Methodical Study of the Human Body in the dissecting room. By EDMUND W. HOLMES, A.B., M.D. Press of Avil Printing Company. 1897. Pages 183, quarto; twelve original illustrations. Price $2 net.

This little book will be found useful to students in memorizing, an anatomic bugbear which is encountered in the shades of the dissecting room.

Essentials of Bacteriology, Being a Concise and Systematic Introduction to the Study of Micro-organisms, for the use of Students and Practitioners. By M. V. BALL, M.D. Third edition, revised, with eighty-one illustrations, some in colors, and five plates. Pages 218. Philadelphia: W. B. Saunders, 1897. Price $1.

This is a carefully compiled little book, and as we have given a favorable opinion of its two former editions we see no reason to change it now, and it seems as if the medical profession generally have been of our opinion, for as it will be seen the work has now passed to its third edition.

A Manual of Legal Medicine. For the use of Practitioners and Students of Medicine and Law. By JUSTIN HEROLD, A.M., M.D. Philadelphia and London: J. B. Lippincott Company, 1898. Pages 677.

Notwithstanding the many excellent works on medical jurisprudence, the author has long since satisfied himself from his long experience as a coroner's physician that there was need of a work of a different character, giving condensed information on the special subjects which it treats.

The work is divided into two parts. Part 1, toxicology, with sixteen chapters; Part 2, forensic medicine, twenty-six chapters. There is an appendix of some fifty pages. The author is clear in his statements, precise, methodic, and has produced an excellent book. We commend it.

Constipation in Adults and Children; with Special Reference to Habitual Constipation in Its Most Successful Treatment by the Mechanical Methods. By H. ILLOWAY, M.D. New York Macmillan Company, also London, 1897. Pages 495. Price $4.00.

The text-book is evanescent, but the monograph lasts forever and is always valuable as a reference book, long enough until the period of its usefulness in certain directions has passed. We should expect a little more, therefore, of a monograph than of a text-book. We would expect it to be more conservative, more complete, and more practical. Looking to these requirements, we find that the volume under consideration fairly fulfills the indications. The type is large and clear, the paper is good; the illustrations are numerous and well executed. The remedies given are judicious, due consideration being devoted to massage and gymnastics.

Essentials of Obstetrics. By CHARLES JEWETT, A.M., M.D., Sc.D., assisted by HAROLD F. JEWETT, M.D. Illustrated by eighty wood-cuts and three colored plates. Lea Bros. and Co. New York and Philadelphia. 1897. Pages 358.

This work contains the elements of obstetrics in easy lesson for the information of students. The author truly says: "The pupil in any department of learning succeeds best by first ma

tering its elements." Consequently the beginner will do well to leave the more elaborate encyclopedic treatises until after he has become master of the elements of the subject.

Quiz Manual of Histology, General and Dental. By CHARLES B. REED, M.D., and FREDERICK B. NOYES, B.A., D.D.S. Chicago, W. T. Keener & Co., 1897. Pages 203.

This quiz manual has been prepared for the use of students, and the subjects are arranged under questions and answers. It makes no claims to original statements, but the answers indicate a thorough acquaintance with the subject. The arrangement of the book is excellent.

NECROLOGY.

HARRISON ALLEN, M.D., emeritus professor of comparative anatomy and zoology in the University of Pennsylvania, from which he was graduated in 1861, died in Philadelphia, November 14. Soon after his graduation he entered the regular army and was stationed in Washington, D. C. He was known as a scientist and as the author of monographs, papers and books on many phases of medicine. At the Columbian Exposition in Chicago Dr. Allen was one of the judges on anthropology. He was a member of the Academy of Natural Sciences, Natural History Society of Boston, Pathological Society of Phil adelphia, Biological Society of Washington, Philadelphia County Medical Society, American Laryngological Association, Neurological Society of Philadelphia, Historical Society of Texas and the Association of American Anatomists. He was also the correspondent of the Society of Natural Sciences of Chili, and was corresponding secretary of the Academy of Natural Sciences in 1868, vice-president of the Pathological Society, 1877; president of the American Laryngological Association, 1886; president of the Association of American Anatmists from 1891 to 1893. He visited Europe in 1878 and 1890 as delegate to the International Medical Congress at Berlin. In 1894 and 1895 he was president of the Contemporary Club of Philadelphia.

JAMES CAREY THOMAS, M.D., Baltimore, Md., November 9. When 19 years old he was graduated from Haverford College, near Philadelphia, receiving the degree of Bachelor of Arts. When 21 he graduated from the University of Maryland, and at once began the practice of medicine. He was at one time president of the Young Men's Christian Association, and at the time of his death a vice-president. He was a trustee and chairman of the executive committee of the Johns Hopkins University, a trustee of the Wilson Sanitarium, president of the Wilson Fuel Saving Society, a trustee of Haverford College, Pennsylvania; of Bryn Mawr, Pennsylvania; stated clerk of Baltimore Yearly Meeting of the Orthodox Friends, and a member of many other organizations and institutions.

W. H. H. KING, M.D., surgeon-in-chief of the Passavant Memorial Hospital, Jacksonville, Ill., November 15. The Docter was a graduate of Rush Medical College, Chicago, class of 1866.——Richard E. Sutton, M.D., Rome, N. Y., November 10.

PUBLIC HEALTH.

Beri-Beri at New Bedford.—The whaling bark, *Greyhound*, arrived at New Bedford, November 4, after a five years' voyage. The crew were stricken with beri-beri about a month ago, of so grave a type that three of the number died and five others were brought into port still suffering from the disease.

Time Schedule for Frost at New Orleans.—In the "Public Health Report" for October 23 is published a table of the dates of the first killing frosts in New Orleans for the years 1873 to 1896. The earliest killing frost occurred in 1877, on November 11, and the latest in 1887, on December 29. The average date was December 7. In Memphis the earliest frost occurred in 1876, on October 2, and the latest in 1889, on November 29, the average being October 26. In Mobile the average date of the first killing frost is November 22; in Montgomery, Ala., November 12, and in Galveston, Texas, December 18. In Vicksburg, Miss., the average date is November 10. The figures are furnished by the United States Weather Bureau, and, as will be seen, furnish a fair indication for Edwards and vicinity.

Condemnation Proceedings Against Insanitary Tenements in New York City.—In the appellate division of the supreme court of New York a decision was handed down by Justice Rumsey to the effect that the condemnation and destruction by the Board of Health of four tenement houses in the rear of 308 to 314 Mott Street, New York, on the ground that they were unfit for habitation, was unlawful in that it was not proved that they could not be made habitable. In the opinion, however, the power of the Board of Health to vacate and destroy unhealthy tenements is expressly upheld, and it only provides for a new trial at which the Health Board may offer further evidence to prove that sanitary evils caused by the condition of the buildings could only be remedied by their destruction. The Board of Health will appeal the case.—*Medical News.*

An antiseptic residence has recently been constructed at Yokohama, Japan, by Dr. W. van der Heyden, the bacteriologist, according to the *Journal d'Hygiène* of October 14. The walls are made of large blocks and slabs of glass, mounted in metal, and the whole hermetically closed. None of the windows open. A row of small openings near the ceiling of the upper story allow the egress of the air without permitting the entrance of the outer air, which is exclusively supplied through a pipe extending some distance beyond the house, into which it is forced, filtered and sterilized by passing over glycerin. The house is entered through a long hall and no germs can enter except those brought on the persons or clothes of the inmates. These microbes, however, find no further chance to develop, as is shown by the fact that butter and milk can be kept a long while without turning rancid or sour. The space left between the glass in the walls is filled with a special saline solution which absorbs the heat of the sun and moderates the temperature within even on the hottest days, while the slow radiation of the absorbed heat and chemic processes in the solution keep the house warm at night.

The Dangers of Aerial Infection of Tuberculosis.—Flügge now announces that the assumption of the transmission of tuberculosis by the inhalation of fine dust from dried sputa has never been proved, although so generally accepted. It is, in fact, refuted by all experimental research to date and no authentic cases in man are on record. The dried germs are not sufficiently virulent to inoculate animals and it is more than probable that the same is true of man. But the danger from *moist* germs is far greater than hitherto realized, and those germs are disseminated abroad in speaking, coughing, sneezing, etc., floating on the tiny drops of moisture expelled from the mouth as described in his previous communication (*vide* JOURNAL November 6, p. 978). He and others have succeeded in inoculating animals every time with these moist germs from the mouth, or in a fine spray blown in their faces, similar to the spray expelled by a consumptive coughing with open mouth. A convincing proof is afforded by the death of the laboratory attendant in charge of the spray experiments, who neglected the imposed precautions and contracted acute phthisis. The spray also floated in the air from one end of the laboratory to the other and infected some dogs kept there for another purpose. The danger, therefore, of infection from the moisture expelled by tuberculous individuals is imminent, but it can be reduced to an insignificant minimum if they hold a handkerchief before their mouth when coughing, and take other obvious precautions to prevent sowing the virulent germs broadcast. Another favorable feature of the case is

that as the moisture dries the danger ceases. He hastens to add, however, that disinfection of apartments, etc., is still as necessary as hitherto considered, for coarse fragments of dried sputa may be swept into the air by sweeping, dusting, etc., and the germs contained in these large pieces may retain their virulence and infect someone before they settle down to the floor or the nearest surface again.—*Deutsche Med. Woch.* October 14.

The Declaration of the Jenner Society.—Dr. Francis T. Bond, the health officer of Gloucester, England, has been active in agitating a modernized practice of vaccination among his fellow countrymen. He now writes to the London *Lancet* regarding the propaganda of the Jenner Society. The following declaration, whilst affirming the report of the late Royal Commission that "sanitation can not be relied on as a substitute for vaccination," also confirms two other conclusions contained in the report, that: First, vaccination, especially by the use of calf lymph, is free from any serious danger, and that, second, to perpetuate the protection against smallpox afforded by vaccination in infancy it is expedient to repeat the operation at a later age.

Declaration. We, the undersigned, actually or recently medical officers of health, think it right, in view of assertions which have been published with some appearance of authority as to the efficacy of "sanitation" as a substitute for vaccination in dealing with smallpox, to make the following statement:

1. As responsible sanitary officials, to whom the care of the health and lives of the community is especially entrusted, we have every inducement to give due weight to the value of "sanitation" in the widest sense of the term for the prevention of smallpox as of other forms of infectious diseases. We include in that term good drainage, the removal of refuse, the supply of pure air and water, and all other conditions which are calculated to fortify the body against disease in general.

2. We are no less alive to the importance of those special precautionary measures which experience has shown to be so valuable, when effectively used, to arrest the spread of infectious disease, such as the immediate notification of illness, the efficient isolation of the sick and of those who have been exposed to infection, and thorough disinfection of persons and things.

3. While thus fully appreciating the value of these agencies for such purposes, we unhesitatingly declare our belief that they can not alone be relied on either to prevent or to stamp out epidemics of smallpox.

4. We believe that the only trustworthy protection at present known against smallpox, alike for the individual and the community, is efficient vaccination in infancy and subsequent re-vaccination, and that the only effective way of stamping out epidemics of this disease lies in the free use of these agencies.

5. We are so thoroughly convinced that the dangers alleged against vaccination are, as the Royal Commissioners have asserted, "insignificant," even without the additional safeguards which the Commissioners have recommended, that in common with nearly the whole of the medical profession, we not only prescribe it generally, but use it for ourselves, our families, and others, in whose welfare we are personally interested.

6. We repudiate the calumny which has been freely circulated that either we or other members of the medical profession have been influenced in forming or expressing our belief in vaccination by any consideration other than that of the public health, but we think it well to add that a considerable number of us derive no emoluments of any kind from the practice of vaccination.

It has already been signed by upward of eight hundred and fifty medical officers of health in Great Britain, India and the colonies. The signatures of those having no pecuniary interest of any kind in vaccination, nearly two hundred and fifty of the above number, include those of officers to a number of English, Welsh and Scotch counties, the metropolitan and nearly all of the large cities and towns. It is still in process of signature and will, it is believed, be endorsed by medical officers of health in all parts of the world.

Preventive Measures Against Rabies.—Dr. T. M. Dolan, editor of the *Scalpel*, has prepared the following résumé of the procedures to be recommended in his dog ridden country for the 'stamping out" of rabies and for the protection of the human species against its extension in the form of hydrophobia:

1. The owners of dogs and other animals should be made to understand the responsibility that rests upon them with regard to the health of their animals, particularly when contagious diseases appear among them.

2. The number of useless dogs should be diminished as much as possible, and a tax should be levied on all dogs.

3. Every dog should wear a collar with the owner's name and address engraved thereon, as well as a particular mark impressed by the licensing or police authorities for the proper registration and identification of the animal.

4. All stray dogs without the collar or the owner's name and address thereon should be captured and, and if not claimed within a limited period, sold or destroyed; and dogs straying with the proper collar on may, where circumstances render it necessary, be seized and confined or returned to the owner, who pays expenses and is fined if need be. Bitches in rut should not be allowed to go at large at any time.

5. Unless under special circumstances, as when rabies is prevalent, or when certain animals are vicious, the muzzle should not be worn.

6. The owners of dogs should be held responsible for the damage done by them.

7. Diseased dogs or those which show the slightest signs of disease, altered habits, etc., should be carefully watched and precautions adopted. If the symptoms of rabies appear, the circumstances should be reported to the police by the owner or attendant on the dog or other persons who know of its condition. Neglect of this should be estimated as a criminal offense. The police should know the early symptoms of the disease.

8. If other animals which have been in contact with or bitten by a rabid dog and become unwell afterward the symptoms ought to be noticed, and should they lead to a suspicion of rabies the creatures must be isolated and their condition reported to the police.

9. Suspected animals should not be killed at once if they have bitten any person, but only destroyed when the disease is unmistakably present.

10. A mad or suspected dog, escaping from its owner, or appearing in the district, should be the signal for alertness, and those who know of the circumstance ought to warn the police at once. Children should be guarded and animals confined or kept from strange dogs. All wandering dogs should be confined or killed.

11. Rabid dogs should be killed, or, if suspected, kept until their condition is ascertained.

12. The police authorities should endeavor to obtain every information about any rabid or suspected dog, and to discover the name and address of its owner, learning also what damage it may have done. Regulations and restrictions should be extended over a wide space of country, and neighboring districts should be warned. All information necessary to put the inhabitants on the alert ought also to be given.

13. When the disease appears in a virulent or epizootic form, all measures ought to be rigorously enforced. Owners of dogs should give due notice of all changes occurring among their animals. Muzzling may be necessary, but the muzzle for each dog should be properly and securely constructed, and sufficient in size without being too large. It must have appliances for attaching it firmly to the head.

14. The destruction and confinement of dogs must be assiduously carried out, and heavy fines or imprisonment should be imposed upon those who attempt to evade or neglect the regulations.

15. Dogs should be slaughtered with as little cruelty as possible. They ought to be buried deeply in the ground, if possible cremated.

16. Disinfection should be carried out as with other contagious diseases.

17. The police regulations and restrictions should be continued for some months beyond the appearance of the last case of rabies. This period should be dependent on the limit of the incubatory stage of the disease in the dog.

18. With regard to other animals when wounded by a suspected or rapid dog, the circumstances should be reported and steps taken to ensure safety. Horses, oxen, and other working animals, may be employed in the immediate vicinity of their homes, but must not be sold, bartered or removed within a certain period. The immediate slaughter of wounded or suspected animals is not necessary, but as soon as rabies manifests itself notice should be given to the local authorities, and the necessary steps taken to prevent damage. The bodies should be buried intact, though, under special circumstances; skinning them may be allowed, in order to tan or dress these parts.

19. Disinfection to be resorted to as in the case of rabid dogs.

20. The flesh is not dangerous as food until the symptoms of the disease have appeared. If used before this period certain precautions should be adopted.

21. The milk may also be utilized during the same period.
22. Competent veterinarians must co-operate in the execution of these measures.

Bubonic Plague Ravages.—According to dispatches dated November 15 and deemed authentic, the bubonic plague shows no abatement in the Poona district. Within the last forty-eight hours there have been 134 new cases reported and 94 deaths. Six hundred and thirty victims of the disease are now in the hospital at Poona. Business in several of the principal streets is suspended and the town is being rapidly deserted by the inhabitants.

Epidemic of Typhoid Fever at Belfast, Ireland.—At the present time there is a wide-spread epidemic of typhoid fever in Belfast, and a large number of cases are being treated in the Union Fever Hospital and in the Royal Hospital. One of the dispensary medical officers asked his committee for further medical assistance, which was granted, owing to the large number of cases in his district. The Public Health Committee of the city at a meeting on October 7 advised that the water retailed from the Cromac springs had not improved in quality and was unfit for human consumption. They pointed out the necessity for the regular cleansing of cisterns in houses and instructed their sanitary officer to have them inspected.

Yellow Fever.—Since our report of last week quarantine regulations in Florida have been so far modified as to permit passengers from all Northern points to enter the State without trouble or annoyance. Alabama has also raised her quarantine, and many other districts have either raised or modified quarantine, so that traffic and business throughout the South is being resumed and many refugees returning home. Dispatches have been as follows: November 16, New Orleans, 11 new cases and 2 deaths; Montgomery, Ala., 2 new cases; Mobile, 3 new cases; Clinton, Miss., 1 new case; Edwards, 3 new cases and 1 death; Scranton, 10 new cases and 1 death; Pensacola, Fla., 1 death. November 17, New Orleans, 7 new cases and 3 deaths; Mobile, 3 new cases. November 18, New Orleans, 6 new cases and 2 deaths. November 19, New Orleans, 6 new cases; Mobile, 2 new cases and 1 death. November 20, New Orleans, 6 new cases and 3 deaths; Fort Barrancas (near Pensacola, Fla.), 1 death. November 21, Fort Barrancas, 1 new case; New Orleans, 8 new cases and 3 deaths; Mobile, 3 new cases and 1 death.

MISCELLANY.

The Toxic Effect of Animal Parasites in Man is ascribed by Peiper to the toxic substances they produce, which are absorbed by the organism and cause the nervous phenomena, etc., which have been imputed hitherto to reflex action.—*Deutsche Med. Woch.*, October 14.

Medical Legislation.—The Joint Committee on Medical Legislation appointed by Illinois State Medical Society, the Eclectic State Medical Society, and the Homeopathic State Medical Society, held a session November 23 in Chicago. A subcommittee was appointed to draft a bill for presentation at the next regular session of the Legislature. The bill is to be reported to the next meeting of the general committee.

The Hedge Doctor.—A "hedge doctor," a kind of quack in Ireland, was being examined at an inquest on his treatment of a patient who had died. "I gave him ipecacuanha," he said. "You might just as well have given him the aurora borealis," said the coroner. "Indade, yer honor, and that's just what I should have given him next, if he hadn't died."—*St. Thomas' Hospital Gazette.*

The Bertillon System in New York State.—In the New York State Reformatory the Bertillon system of identification is in full operation. In the opinion of experts the maximum of bony growth in this country is not attained much before the twenty-fifth year. The value of this system in growing lives therefore remains to be determined, as it is founded upon the almost absolute immutability of the human frame after the twentieth year.

Officers of the New York County Society for 1898.—At the annual meeting of the New York County Medical Society, held Monday evening, October 25, the following officers were elected for the ensuing year: President, A. M. Jacobus; first vice-president, Nathan E. Brill; second vice-president, B. Farquhar Curtis; secretary, Chas. H. Avery, whose death took place just one week later; treasurer, John S. Warren.

Protektin is a new inexpensive, adhesive, aseptic, waterproof silk paper impregnated with rubber, which surgeons will find useful to apply freely around the field of operation to assure asepsis, particularly over hair-covered surfaces, garments, etc. It can also be used to fasten a permanent catheter in place or close a fistula temporarily.—*Cbl. f. Chir.*, October 30.

A Slick Trick on Physicians.—A very smooth party, representing a new Western life insurance company, dropped into Cleveland recently and called upon a number of physicians with the tale that he was about to do a large business here and wished to appoint two examiners. His company, however, had "instructed him to do business with those who would do business with him," so if the doctor would kindly take a policy for $5,000 (no less would do), he would be appointed an examiner. It is to be regretted that, if rumor speaks truly, a few doctors were still to be found there who jumped at this threadbare bait.

New Medical Journal.—In January, 1898, the Philadelphia Medical Publishing Company, incorporated under the laws of Pennsylvania, will begin the publication of a weekly medical journal, to be called *The Philadelphia Medical Journal*. The company has a capital of $30,000, in shares of $10 par value, full paid and non-assessable. The management of the company is entrusted to a board of trustees, in which are representatives of leading medical schools. The editorial management has been entrusted to Dr. George M. Gould. The price of subscription is $3 per annum.

The Third International Lepra Conference confirmed the Hansen-Neisser bacillus as the cause of leprosy according to our present knowledge, and proclaimed again the contagious, non-hereditary character of the disease. Treatment to date, including serum treatment, has only scored palliative results. Isolation is endorsed as the only radical means of combating leprosy, and the success obtained by Norway in the forcible isolation of lepers when necessary, was recommended to other nations with sufficient local authority and medical attendance to enforce such measures.

Hysteria in the Male.—Vogt reports the case of a workingman aged 42 years, suddenly attacked by paralysis of the left side of the body, which later extended to the whole of that side. There was no sign of syphilis. The condition lasted for four months without much change. There was polyuria. There was anesthesia of the left side and paresis of both upper and lower limbs. The left testicle was hyperesthetic and there were hyperesthetic spots on the left side of the back. There was diminution of hearing and sight on the left side; on the right there was nothing abormal. Purely suggestive treatment without any drugs effected a complete cure.—*British Medical Journal.*

Disturbances in the Digestion Caused by Hernia.—Kuttner describes in the *Mitth. a. d. Grenzbieten der Med. u. Chir.*, No. 5, the colic, vomiting, or permanent pain with eructations, nausea, loss of appetite and vomiting which often accompany hernia, especially in the linea alba. These phenomena are familiar to the surgeon, but are scarcely referred to in the works on affections of the digestive apparatus, and are mis-

taken for gastric neuroses by some physicians. The phenomena are the same whether the trouble is caused by a subperitoneal ligament pulling on the peritoneum, or an actual hernia, consisting usually mostly of the omentum. The operation that cures the hernia abolishes the digestive disturbances.—*Cbl. f. Chir.*, October 30.

St. Louis Academy of Medical and Surgical Sciences.—The St. Louis Academy of Medical and Surgical Sciences has elected the following officers for the ensuing year: President, A. H. Ohmann-Dumesnil; senior vice-president, G. C. Eggers; junior vice president, J. B. Ross; secretary, Emory Lamphear; treasurer, George F. Hulbert; curator, G. H. Thompson; orator, Phil Schultz; librarian, James Moores Ball.

The New Orleans Isolation Hospital.—The Isolation Hospital at New Orleans up to October 25 has cared for 118 patients. Of this number, 64 have been discharged cured, 13 have died, 41 remain under treatment. The showing is not bad, as it must be considered that many of the patients have been brought there in an advanced stage of the disease, a few being actually *in extremis*. The hospital is under the management of the Charity Hospital authorities, and is visited by Drs. Bloom and Veazie, while Dr. Hamilton Jones is the resident physician in charge.—*New Orleans Medical and Surgical Journal*, November.

How to Banish All Disease and Misery.—The Vegetarian Congress has lately held its meetings in London. The "provost" of the "order" presided and explained that the body claimed members in nineteen countries, and existed for the purpose of hastening "the coming of the Golden Age, when love, peace and good-will shall reign in every human heart, and by endeavoring to promote universal benevolence and philanthropy." The "provost" alluded to the symptoms of a great wave of human feeling setting in throughout the world in recognition of the rights and claims of animals. He looked forward to an end of the era of butchery ere many decades were passed, and in a reform dietary saw the solution of the problems of drink and agricultural depression. The hospitals will be occupied by cases of senile decay.

The Congress of the Association of Surgeons in France.—The eleventh congress of the French Association of Surgery was opened on October 18, in the great amphitheater of the Faculty of Medicine at Paris, under the presidency of Professor Gross of Nancy, a large number of French, Belgian and Swiss surgeons being present. Professor Gross made an important speech in which he passed in review all the recent victories of science, and referred particularly to the services which the discovery of the Roentgen rays had rendered to medicine and surgery. This medium, as Professor Ollier remarked, allowed one to make a veritable necropsy of the skeleton in the living being. M. Poncet of Lyons, read a paper upon "Botryomycosis in Human Beings," in which he argued that certain papillary tumors in man were identical with the botryomycosis caused by a fungus which brings about complications in the castration of horses. M. Berger read a paper on "Epithelioma of the Neck Having a Bronchial Origin," and mentioned certain aberrant epitheliomata of the thyroid body. M. Lavise of Brussels, read a communication upon the "Treatment of Hernia," and M. Demous of Bordeaux, one upon "Contusions of the Abdomen."

American Association for the Study and Cure of Inebriety.—The twenty-seventh annual meeting of this Association will be held Dec. 8, 1897, in the hall of the Washingtonian Home, 41 Waltham Street, Boston. The following papers are announced: "The Prognosis of Inebriety," by J. M. French, Milford, Mass; "The Alcoholic Question in Medicine," by John F. Couch, Somerville, Mass.; "The Causation and Heredity in Inebriety," by Surgeon-Major Pool, London, England; "Treatment of Inebriety by Baths," by C. H. Shepard, Brooklyn; "Treatment of Delirium Tremens, with a case," by V. A. Ellsworth, Boston; "The Insanity of Inebriety," by T. D. Crothers, Hartford, Conn.; "The Use of Alcohol in Practical Medicines," by I. N. Quimby, Jersey City, N. J.; "Some New Methods in the Treatment of Alcohol and Opium Addiction," by J. H. Kellogg, Battle Creek, Mich. Papers have been received from Drs. Motet and Lagrand of Paris, France; also from Drs. Clark, Ridge and Stearns. Papers are promised from Drs. Mattison, Seavsey, Hall and others. The annual address will be delivered by Ira Van Geason, Director of the New York State Pathological Institute: "On Some Recent Researches on the Action of Alcohol on Brain Cells."

The Oakbourne Colony for Epileptics in Pennsylvania.—The *Medical News* announces that the Pennsylvania Hospital for Epileptics and Colony-farm at Oakbourne has been lately completed, and is now ready for occupancy. The formal opening will take place in a few weeks. The new hospital is made up of three buildings, but it is intended to extend, from time to time, the fields of the work, as funds permit, and to establish cottage after cottage on the grounds of the institution. The idea of the managers of the hospital to colonize on a large scale in this locality as many epileptics as the State can support, is an undertaking which, from its humane basis and its eminently practical results, must meet with the sympathy of every one interested in the welfare of this unfortunate class of the community, and that such results outweigh the cost of the monetary outlay is conceded by all students of sociology. The institution has been made a possibility through the generosity of Henry C. Lea of Philadelphia, who contributed $50,000 for the erection of the buildings, while the hospital has also received liberal endowments from other individuals and from the State. The medical staff of the hospital is as follows: Medical director, Dr. S. W. Morton; staff of visiting physicians, Drs. Harvey Shoemaker, G. E. Shoemaker, H. A. Slocum, Wm. C. Posey, A. A. Bliss, Wm. G. Spiller, A. Ferree Witmer, and S. W. Morton. The consulting physicians are Drs. S. Weir Mitchell, J. M. Da Costa, G. E. de Schweinitz, J. William White and Charles H. Burnett.

Bellevue Hospital Medical College.—The cornerstone of the new building of the Bellevue Hospital Medical College was laid November 13. The structure will be five stories high, of red brick, and trimmed with limestone. It is to have a steel frame, and it will cost about $200,000, which has been subscribed by members of the faculty. It stands at the corner of Twenty-sixth street and First avenue, next to the Carnegie Laboratory, and will be ready for occupancy in the spring. D. O. Mills, president of the Board of Trustees, presided at the laying of the cornerstone yesterday. Dr. Austin Flint introduced Dr. Lewis A. Sayre, Emeritus Professor of Orthopedic Surgery, who said, after the cornerstone had been lowered into place, giving it a final tap with the trowel: "By virtue of the power given me by the trustees and faculty of Bellevue Hospital Medical College, I hereby dedicate this building to the cause of suffering humanity." Under the stone was placed a copper chest containing an account of the inauguration of the college in October, 1861, the alumni catalogue containing a history of the college, a history of the Bellevue Hospital, lecture cards and alumni circulars for each year since 1861; diphtheria antitoxin; a tube containing spores of aerogenes capsulatus (the bacilli of a form of gangrene) which were discovered in April, 1896, and are the oldest identified spores of this species in the world; yesterday morning's *Tribune* and *The Evening Sun*. Dr. Landon Carter Gray, representing the alumni, the Rev. Dr. Roderick Terry of the trustees, and Dr. John S. Billings, representing the medical profession, delivered addresses of congratulation and eulogy in the lecture room of the Carnegie Laboratory after the exercises at the stone.

After the exercises Mayor Strong, Commissioner Faure, and Gen. O'Beirne inspected the new erysipelas pavilion, boiler house, women's wards, and morgue at Bellevue. Mayor Strong said the Bellevue ambulance service was the best in the city, and complimented Superintendent Murphy and the physicians on the appearance of the hospital.—*N. Y. Sun*, November 14.

Massage in the Treatment of Sprains.—Dr. Graham refers to the advantages to be derived from the treatment of a sprain with almost immediate massage and passive or active motion. Applied intelligently, massage is allowable from the first, the presence of, or increase in the pain being the surest guide to an excessive or faulty use of this method of treatment. From study and a large and continued experience, the writer draws the following conclusions:

1. A sprain is a wrench or twist of a joint, a sudden partial displacement of two articulating surfaces, followed by immediate replacement. 2. The symptoms are pain, swelling, discoloration, and usually heat and impaired motion. 3. Its diagnosis may be obscured by the swelling which may conceal a fracture. 4. Whatever will quickly reduce the heat, pain and swelling, such as massage, snug bandaging, and elevated position of the joint, will proportionately make the diagnosis easier. 5. The means just mentioned are, therefore, not only valuable for diagnosis, but also for treatment; and their use in many cases of sprains of all degrees of severity show that they recover in one-third of the time required under absolute rest and fixed dressings without massage. 6. Even the sprain of a joint previously weakened by malignant disease may be rapidly ameliorated by massage.

Other articles by Lovett and Mumford, in the same number of this journal, substantiate these claims and give details of treatment.—*Boston Medical and Surgical Journal.*

Injections of Alumnol in Laryngeal Disease.—Dr. Metzerott of Washington has had favorable results from the use of this drug in the forms of gargle, spray, atomized solution and with the laryngeal syringe. He instances with special satisfaction the following case, probably syphilitic in origin, in the September issue of the *American Therapist*:

In a case of symptomatic edema of the larynx, accompanied with a perichondritis of the crico-arytenoid cartilages, in which there was stenosis of a most severe grade, I was able by means of solutions of alumnol, administered in the form of injections and the steam spray, to defer the performance of tracheotomy for a period of six months. In this particular patient it was really remarkable how quickly the inflammatory edema would be reduced by one or two injections of a solution of alumnol into the larynx, and maintained for a longer time by inhalations of vapor charged with the same remedy. Indeed, it was a pleasure to behold with the laryngoscope how rapidly a laryngeal image of swollen ventricular bands and injected and tumefied vocal cords would change to a picture almost normal. It is immaterial whether this particular case to which I have just alluded was due to cancer, tuberculosis or what it has the clinical appearance of being now, syphilis, the fact remains that a most powerful impression was made upon the accompanying inflammatory edema, which at the time I took charge of the patient was of such a degree that I myself and the attending physician regarded the case as hopeless without the performance of tracheotomy.

No bad after-effects were noticed, although the steam spray was daily applied for several months. In a case of subglottic laryngitis accompanied with that wave-like fluttering of the vocal cords, a condition usually very stubborn to treatment, I was able to relieve my patient, a singer, in a very short while by using nothing but alumnol in the spray. In another case of chorditis nodosa (singer's nodules) I was able to dispense with instruments by employing strong solutions of alumnol.

The Sixty-Ninth Annual Congress of the Physicians and Naturalists of Germany assembled last month at Brunswick. Most of what was presented has already been described in these columns, but the general session devoted to scientific photography opens a new era in scientific teaching, with the improved cinematographic projections, on a large scale, of the movements of the exposed heart in animals, exhibited by Ludwig Braun of Vienna. The entire picture of the action of the heart was clearly presented to the assembly. Professor Lassar's artistically colored "diapositive" projections of dermatologic and histologic subjects also illustrated the marvelous progress in photography, and views of two cases of lupus of the face and arm created quite a sensation, as the series showed recovery and finally complete cure by the therapeutic application of the Roentgen ray, Max Lewy of Berlin exhibited his sensitive plates with film on both sides, which only require an exposure of thirty seconds. Kohlrausch illustrated with cinematograms the gait of tabetics, and Rosenthal of Munich announced further improvements in the technique of Roentgen photography. In the discussion of trigeminus neuralgia, Krause stated that there are 113 operations on record, with a mortality of 15 per cent. His own operations number fifteen with one fatality; the others free from recurrence; five years the longest period. He first administers aconitin nitricum, with which alone he has cured two cases. He does not operate until he has consulted a specialist to eliminate neuritis. A slight operation does not prevent more radical intervention later if necessary. Operations on the facialis he does not consider permanent and therefore rejects them. The extracranial method is more certain when the lesion can be located at the branching of the nerve, or in single branches. The nerve should be severed above the junction of the branches involved. When the nerve can be reached outside the cranium at the base, it should be operated on at this point, but if necessary to operate within the cranial cavity; if the skull is cut down deep the brain can be raised a little, and a slight compression will suffice, which will not cause disturbances in the speech. The motor root need not be touched, as it is readily distinguished by its harder consistency. Glück added that any injury to the carotid can be easily remedied by a ligature. Bruns ascribes to arteriosclerosis the severer cases, especially in elderly people with neuralgia in the second or third branch, reflex muscular contractions, *fœtor ex ore*, etc.. Rumpf emphasized the unmistakable benefits to be derived from electricity, which are not all due to suggestion. Franke reported a case that had recurred after an operation two years before, which he had cured since with pyramidol. Sprengel also reported a case with tic, cured by stretching the facialis.

Economy in Ourselves is Parsimony in Others.—"How I dislike the word 'economy.'"

"On what grounds?"

"It is such a queer thing—the world condemns us if we do not practice it and despises us if we do."—*Detroit Free Press.*

Medical Colleges in United States and Canada Conditionally and Unconditionally Recognized by the Illinois State Board of Health.

Students from these Institutions may be accorded advanced standing without examination, for the number of full courses taken, by colleges recognized as in "good standing" by the Illinois State Board of Health.

ALABAMA.—Medical College of Mobile.

ARKANSAS.—Medical Department Arkansas Industrial University, Little Rock.

CALIFORNIA.—Cooper Medical College, San Francisco. Medical Department University of California, San Francisco. California Medical College, San Francisco. Hahnemann Hospital College, San Francisco. College of Medicine of the University of Southern California, Los Angeles.

CANADA.—University of Toronto, Medical Faculty, Toronto, Ont., Trinity Medical College, Toronto, Ont. Royal College of Physicians and Surgeons, Kingston, Ont. Medical Department of Western University, London, Ont. Woman's Medical College, Toronto, Ont. McGill University, Faculty of Medicine, Montreal, Que. Montreal School of Medicine and Surgery, Montreal, Que. (L'Ecole de Médecine). Laval University, Medical Department, Quebec, Que. University of Bishop's College, Faculty of Medicine, Montreal, Que. Dalhousie University, Faculty of Medicine, Halifax, N.S. Halifax Medical College, Halifax, N.S. Manitoba Medical College, Winnipeg, Man. Woman's Medical College, Kingston, Ont.

COLORADO.—College of Medicine, University of Denver, Denver. Colorado School of Medicine, Boulder (Medical Department of the University of Colorado). Gross Medical School, Denver (Medical Department of Rocky Mountain University).

CONNECTICUT.—Yale Medical College (Medical Department Yale University).

DISTRICT OF COLUMBIA.—National Medical College, Washington (Medical Department Columbian University). University of Georgetown, Medical Department, Washington. Howard University, Medical Department, Washington. Medical Department National University, Washington. United States Medical School, Washington. United States Naval School, Washington.

FLORIDA.—Medical Department of Florida University, Tallahassee (Tallahassee College of Medicine and Surgery).

GEORGIA.—Medical College of Georgia, Augusta (Medical Department University of Georgia). Medical College, Atlanta. Georgia College of Eclectic Medicine and Surgery, Atlanta. Southern Medical College, Atlanta.

ILLINOIS.—Rush Medical College, Chicago (Medical Department Lake Forest University). Northwestern University Medical School, Chicago (Chicago Medical School). Bennett College of Eclectic Medicine and Surgery, Chicago. Hahnemann Medical College and Hospital, Chicago. Northwestern University Woman's Medical School, Chicago (Woman's Medical College). Chicago Homeopathic Medical College, Chicago. College of Physicians and Surgeons, Chicago. Chicago Physio-Medical College, Chicago. National Medical College, Chicago (National Homeopathic Medical College). Hering Medical College, Chicago. Harvey Medical College, Chicago. Jenner Medical College, Chicago (Harvard Medical School). Illinois Medical College, Chicago (Chicago Summer School of Medicine). Dunham Medical College, Chicago.

INDIANA.—Physio-Medical College of Indiana, Indianapolis. Medical College of Indiana, Indianapolis. Central College of Physicians and Surgeons, Indianapolis. Fort Wayne College of Medicine, Fort Wayne. Eclectic College of Physicians and Surgeons, Indianapolis.

IOWA.—College of Physicians and Surgeons, Keokuk. Medical Department State University of Iowa, Iowa City. Homeopathic Medical Department State University of Iowa, Iowa City. Iowa College of Physicians and Surgeons, Des Moines. Keokuk Medical College, Keokuk. Sioux City College of Medicine, Sioux City.

KANSAS.—University of Kansas, Preparatory Medical School, Lawrence. Kansas Medical College, Topeka.

KENTUCKY.—University of Louisville Medical Department, Louisville. Kentucky School of Medicine, Louisville. Louisville Medical College, Louisville. Hospital College of Medicine, Louisville (Medical Department Central University of Kentucky). Southwestern Homeopathic Medical College, Louisville.

LOUISIANA.—Medical Department Tulane University of Louisiana, New Orleans. New Orleans University, Medical Department, New Orleans.

MAINE.—Medical School of Maine at Bowdoin College, Brunswick.

MARYLAND.—University of Maryland, School of Medicine, Baltimore. College of Physicians and Surgeons, Baltimore. Baltimore Medical College, Baltimore "A." Baltimore University School of Medicine, Baltimore. Woman's Medical College of Baltimore. Johns Hopkins Medical School, Baltimore. Southern Homeopathic Medical College, Baltimore.

MASSACHUSETTS.—Medical College of Harvard University, Boston. College of Physicians and Surgeons, Boston (Previous to 1894). Boston University School of Medicine, Boston. Tuft's College Medical School, Boston.

MICHIGAN.—Department of Medicine and Surgery of the University of Michigan, Ann Arbor. Homeopathic Medical Department of the University of Michigan, Ann Arbor. Michigan College of Medicine and Surgery, Detroit. Detroit College of Medicine, Detroit (formerly Detroit Medical College which consolidated with the Michigan College of Medicine in 1885 and formed the Detroit Medical College).

MINNESOTA.—College of Medicine and Surgery, Minneapolis (Department of Medicine University of Minnesota). Minneapolis College of Physicians and Surgeons, Minneapolis. College of Homeopathic Medicine and Surgery, Minneapolis.

MISSOURI.—Missouri Medical College, St. Louis. St. Louis Medical College, St. Louis (Medical Department Washington University). Medical Department University of Missouri, Columbia. Homeopathic Medical College of Missouri, St. Louis. Kansas City Medical College, Kansas City. St. Louis College of Physicians and Surgeons, St. Louis. American Medical College (Eclectic), St. Louis. Northwestern Medical College, St. Joseph. University Medical College of Kansas City. Ensworth Medical College, St. Joseph (formerly St. Joseph Medical College). Beaumont Hospital Medical College, St. Louis. Central Medical College, St. Joseph. Barnes Medical College, St. Louis. Marion-Sims College of Medicine, St. Louis. Kansas City Homeopathic Medical College, Kansas City. Woman's Medical College, Kansas City. Woman's Medical College of St. Louis.

NEBRASKA.—Omaha Medical College, Omaha. Medical Department Cotner Univertity (Eclectic), Lincoln. John A. Creighton Medical School, Omaha.

NEW HAMPSHIRE.—Dartmouth Medical College, Hanover (New Hampshire Medical College).

NEW YORK.—College of Physicians and Surgeons of Columbia University, New York. Albany Medical College, Albany. University Medical College, New York (Medical Department University of City of New York). Medical Department of the University of Buffalo, Long Island College Hospital, Brooklyn. New York Homeopathic Medical College and Hospital, New York. Bellevue Hospital Medical College, New York. New York Medical College and Hospital for Women, New York. Eclectic Medical College of the City of New York. Woman's Medical College of the New York Infirmary, New York. Syracuse University College of Medicine, Syracuse. Medical Department of Niagara University, Buffalo.

NORTH CAROLINA.—Leonard Medical School, Raleigh. North Carolina Medical School, Davidson (formerly Davidson School of Medicine).

OHIO.—Medical College of Ohio, Cincinnati (Medical Department University of Cincinnati). Eclectic Medical Institute, Cincinnati. Western Reserve University, Medical Department, Cleveland. Starling Medical College, Columbus. Cleveland Homeopathic Medical College, Cleveland (formerly Cleveland University of Medicine and Surgery, formerly the Homeopathic Medical College; Cleveland Homeopathic Medical College is a consolidation of the Cleveland Medical College and Cleveland University of Medicine and Surgery). Cincinnati College of Medicine and Surgery, Cincinnati. Miami Medical College, Cincinnati. Medical Department of the University of Wooster, Cleveland. Pulte Medical College (Homeopath) Cincinnati. Toledo Medical College, Toledo. Woman's Medical College of Cincinnati. Laura Memorial College, Cincinnati (Woman's Medical College of Presbyterian Hospital). National Normal University College of Medicine, Lebanon (previous to 1896). Cleveland Medical College, Cleveland (consolidated with the Cleveland University of Medicine and Surgery, now Cleveland Homeopathic Medical College). Ohio Medical University, Medical Department, Columbus. Presbyterian Hospital, Woman's Medical College, Cincinnati.

OREGON.—Medical Department of Willamette University, Portland. Oregon University Medical Department, Portland.

PENNSYLVANIA.—University of Pennsylvania Department of Medicine, Philadelphia. Jefferson Medical College, Philadelphia. Hahnemann Medical College and Hospital, Philadelphia. Woman's Medical College of Pennsylvania, Philadelphia. Medico-Chirurgical Medical College, Pittsburg.

SOUTH CAROLINA.—Medical College of the State of South Carolina, Charleston.

TENNESSEE.—Medical Department of the University of Nashville and Vanderbilt University, Nashville (separated in 1895 and formed two schools, Medical Department of University of Nashville and Medical Department of Vanderbilt University). Medical Department University of Nashville. Medical Department Vanderbilt University, Nashville Medical Department University of Tennessee, Nashville. Meharry Medical Department of Central Tennessee College, Nashville. Memphis Hospital Medical College, Memphis (Medical Department Southwestern Baptist University). Tennessee Medical College, Knoxville. Chattanooga Medical College, Chattanooga (Medical Department of U. S. Grant University, originally East Tennessee Wesleyan University). Hannibal Medical College of Memphis. Medical Department University of the South, Sewanee.

TEXAS.—School of Medicine of the University of Texas.

VERMONT.—Medical Department of the University of Vermont, Burlington.

VIRGINIA.—University of Virginia Medical Department, Charlottesville. Medical College of Virginia, Richmond. University College of Medicine, Richmond (formerly College of Physicians and Surgeons).

WISCONSIN.—Wisconsin College of Physicians and Surgeons, Milwaukee.

CHANGE OF ADDRESS.

Cochran, J. L., from Uniontown to Sitar Junction, Pa.
Case, C. E., from Everett to Tacoma, Wash.
Dunlap, F., from Danville, Ky., to Bloomington, Ill.
Hobday, W. A., from Halstead, Minn., to 1530 2d St., Louisville, Ky.
Luther, C. V., from Newark to South Orange, N. J.
Nahensky, H., from 221 Wabansia Ave. to 165 Hudson Ave., Chicago.
McIntire, J. H., from 710 Olive St. to 303 Century Bldg, St. Louis, Mo.
Page, Henry, from Baltimore, Md., to Army Medical Museum, Washington, D. C.
Patton, J. A., from 2106 to 2082 Congress St., Chicago, Ill.
Ruggles, A. D., from 284 St. Nicholas Ave. to 368 W. 56th St., New York.
Rabuck, S. B., from Lyle, Minn., to Bloomville, N. Y.
Koop, J. W., from Daily's, Texas, to Petersburg, Ark.
Woodbridge, J. E., from Cleveland, Ohio, to North Shore Hotel, Chicago, Ill.

LETTERS RECEIVED.

Austin, R. S., Molino, Mo.
Burr, C. B., Flint, Mich.; Baldwin, J. F., Columbus, Ohio; Bates, L. B., St. Matthews, S. C.; Bulkley, L. Duncan, New York, N. Y.; Bausch & Lomb Optical Co., Rochester, N. Y., (2); Baltimore University, School of Medicine, Baltimore, Md.; Burwell, W. M., Chincoteague Island, Va.; Brown, R. S., Louisville, Ky.
Crumrine, Clyde W., Lone Pine, Pa.; Cook, G. F., Oxford, Ohio; Cochran, Sam, Louisville, Ky.
Davis, H. V., North Branch, N. J.; Dennison, J. A., Moffat, Texas; Dailey, T. L., Paxton, Ind.; Davis, Elias, Nilwood, Ill.; De Voe, A., Seattle, Wash.; Drewet Mfg. Co., New York, N. Y.
Fessenden Mfg. Co., Pittsburg, Pa.; Farris, Reuben, Brodhead, Ky.; Frissell, Seraph, Springfield, Mass.; Fuller's, C. H., Adv. Agency, Chicago, Ill.
Grube, W. W., Toledo, Ohio; Gihon, A. L., New York, N. Y.
Hektoen, L., Chicago, Ill.; Hanks, James, Brashear, Mo.; Hurty, J. N., Indianapolis, Ind.; Harrison, R. H., Columbus, Texas.
Jones, Allen A., Buffalo, N. Y.; Jones, W. D., Rising City, Neb.; Johnson, S. W., New Haven, Conn.
Lind, E. T., Chicago, Ill.; Leslie, C. H., Palmyra, Pa.; Lea Brothers & Co., Philadelphia, Pa.; Leitch, Mary and Margaret, Roxbury, Mass.; Larned, E. R., Joliet, Ill.
Munich, W. H., Dallastown, Pa.; Moxley, J. L., Lewiston, Idaho; McDonald, A. W., Coutenay, N. D.; Murray, J. A., Clearfield, Pa.; McGee, J. A., Rice, Texas; Medical Echo Publishing Co., Lynn, Mass.; Mowery, H. W., Marietta, Pa.; Myers, F. C., Kalamazoo, Mich.; Merrick, M. B., Passaic, N. J., (2); McIntosh, J. M., Connersville, Ind., (2); Milliken, John T. & Co., St. Louis, Mo.; Morton, H. McI., Minneapolis, Minn.
Oxford Retreat, Oxford, Ohio; Ormiston, J. S., Hartwick, Iowa; Olmstead, W. H., Taylor, Pa.
Pynchon, Edwin, Chicago, Ill.; Parmele, Charles Roome Co., New York, N. Y.; Parke, Davis & Co., Detroit, Mich.; Pollard, W. M., Atlantic City, N. J.; Phillips, John, Stevens Point, Wis.; Parke, W. H., Detroit, Mich.; Pillsbury, H. H., Palo Alto, Cal.
Quint, N. P., West Medway, Mass.; Quimby, I. N., Jersey City, N. J.
Rosenthal, Edwin, Philadelphia, Pa.; Reed & Carnrick, New York, N. Y., (2); Richman, W. C., Price, Utah.
Shields, W. Bayard, St. Francis, Ark.; Shoemaker, John V., Philadelphia, Pa.; Smith, F. W., Syracuse, N. Y.; Sigworth, H. W., Anamosa, Iowa; Schultz, Ed. F., Milwaukee, Wis.
Trowbridge, S. S., Detroit, Mich.
Upjohn Pill and Granule Co. Kalamazoo, Mich.
Von Quast, E., Kansas City, Mo.; Vest, M. C., Forest Hill, Ind.
West, H. A., Galveston, Texas; Woodling, M. E., Minneapolis, Minn.; Werner, O. S., Manistee, Mich.; Wilson, H. (Mrs.), Galesburg, Ill.; Woodruff, T. A., Chicago, Ill.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from November 6 to 12, 1897.

Capt. R. G. Ebert, Asst. Surgeon, is granted leave of absence for one month.

Lieut.-Col. J. V. D. Middleton, Deputy Surgeon-General, is granted one month's extension to present leave of absence.

Lieut.-Col. William E. Waters, Deputy Surgeon-General, retirement from active service this date, Nov. 15, 1897, is announced. By direction of the President.

Capt. Richard W. Johnson, Asst. Surgeon, is relieved from duty at Ft. Logan, Colo., and ordered to Ft. D. A. Russell, Wyo., for duty.

Capt. Charles E. Woodruff, Asst. Surgeon, will upon the abandonment of Ft. Custer, Mont., proceed to Jackson Bks., La., and report for duty at that post, to relieve Major William C. Shannon, Surgeon.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 20, 1897.

Surgeon C. G. Herndon, detached from the Bureau of Medicine and Surgery and placed on waiting orders.

Asst. Surgeon J. C. L. Thompson, detached from the naval laboratory, Brooklyn, and ordered to the naval hospital, Mare Island, Cal.

Asst. Surgeon W. B. Grove, detached from the naval hospital, Mare Island, Cal., on reporting of relief, and ordered to the "Oregon."

P. A. Surgeon T. L. B. Bailey, detached from the "Yorktown" and ordered home with two months' leave.

V 18